RESOURCE UNIT
FOR TEACHERS

THE
ALBERTA STORY

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Department of Education
Edmonton

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ALBERTA'S STORY

INTRODUCTION

The Alberta story began a very long while ago. Many strange things happened in those far-off times and it seems difficult for us to believe that great seas once rolled over our land and that huge dinosaurs roamed through Alberta swamps and jungles. But all these were gone long before the white men came. The only record we have of those times is in our rocks, our oil and in the bones of the great animals that once lived here.

The Indians came to Canada over 15,000 years ago, followed down the Old North Trail which ran well inside of the Rocky Mountains, and spread out to cover the whole continent. On the way probably every group saw the great parklands and prairies of this country for this Old North Trail was the main route of entry. This primitive and for the most part nomadic people, the remnants of whom now live on reserves, have given their names to rivers, lakes and towns from coast to coast, and they have also left us a rich heritage of folklore and legend.

The first white men to reach Canada came looking for a sea route to the rich countries of China and India where they might obtain gold, spices and jewels. They were disappointed to find only fish, and furs from the forests, but the furs soon proved to be an exceedingly great source of wealth. The demand for more and more of the silky hides of otter, beaver and marten sent explorers westward until they reached the western sea.

In their footsteps came the missionaries to Christianize the Indians and provide a basis of understanding between the red man and the white man. These first adventurers and missionaries were followed by the pioneer settlers who braved dangers and suffered many hardships in order to build homes in the new land. Gradually Alberta became the home of many people and proved to be a land of opportunity. The great natural wealth and the freedom to venture into new enterprises provided a basis for much industry. As a result the country has developed amazingly. There are more people in Edmonton today than there were in the whole province fifty years ago.*

Alberta's early history is strange and fascinating, the years of discovery, settlement and development fill us with pride and the future is full of promise. Many chapters remain to be written of our Alberta story. We hope that they will tell of peace and prosperity.

In 1911 there were 73,022 people in Alberta: today there are over a quarter of a million people in Edmonton.

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How To Use This Teacher's Resource Unit

The chart on page 7 has outlined many of the problems which could be chosen for a study of Alberta. It is felt that any enterprise on Alberta should include the information outlined in sections 1, 3, 12, 13, 14, and 16 as this knowledge is basic to an understanding of our province.

The content material is for the teacher's use. Much of it is technical and in parts there are many statistics. It is not intended that elementary pupils should learn or handle this detailed information. Facts about Alberta are sometimes hard to obtain and it is hoped that those which have been included will provide the teacher with background material.

The set of Alberta maps was included for comparative purposes in class. By examining a series of two or three—for example the vegetation, climatic, and population maps the relationship between climate, vegetation, and population can be established.

Any enterprise should include not only history and geography but a considerable amount of health and science. Many of the problem areas suggest correlation. These have been indicated in the section on pioneer life. Little has been said about the building of such language skills as outlining, reporting, and note making, but the use and development of these abilities is an essential part of a good enterprise.

Objectives

1. Knowledge and appreciation of the work of explorers, pioneer settlers and missionaries who opened the doors for those who followed.
2. Appreciation for the efforts of people from a variety of nations who contributed to the building of the province.
3. Tolerance for people with different customs, language and goals from our own.
4. Recognition of the importance of our great wealth in natural resources to ourselves and to the rest of Canada.
5. Understanding of the need for conservation of our wealth for the generations of people who follow us.
6. Consideration of the contribution each person, each group, each community makes to Alberta as a whole.
7. Understanding of the need for co-operation between different people.
8. Recognition of the contribution science has made to industrial Alberta.
9. Acquisition of the following skills and abilities:
    - (a) To interpret maps, diagrams, scales, etc.
    - (b) To make outlines of material heard or read and to make reports or précis on sections of enterprise material
    - (c) To use references and indices
    - (d) To file materials, notes and pictures on topics
    - (e) To estimate distances
    - (f) To spell correctly the geographical and historical names of importance covered in the unit of study
    - (g) To evaluate work done in order to determine personal improvement

Motivation

1. Introduction

    Show a stampede film. Discuss how the Calgary Stampede grew from the interests and amusements of the early ranchers.

    Put up a number of Alberta pictures with a set of "Do You Know?" facts. Gather a number of Alberta pamphlets and booklets and some new books on Alberta. Put them in the free reading section of the library.

2. Establishing the Setting

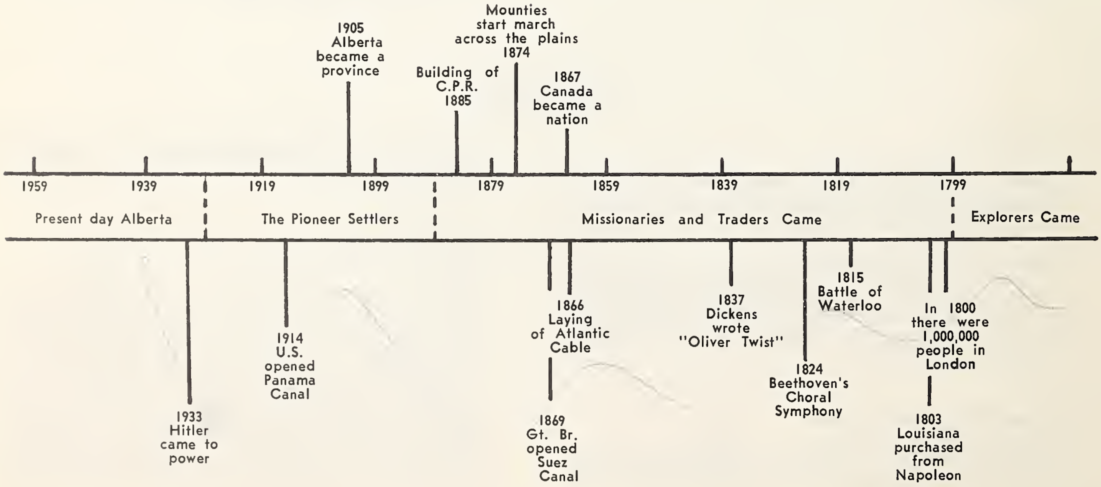
    A lesson or series of lessons on Alberta resources, historic sites, provincial parks, growing cities, etc. Maps may be obtained from the Department of Lands and Forests. (See *Classroom Aids for Teachers.)*

3. Setting the Boundaries of the Enterprise

    The teacher may outline the possibilities there are for a study of Alberta. The historical aspect, the pioneers, the ranchers, the discovery of oil, planning for the future in Alberta's cities and towns, new industries in Alberta, culture in Alberta, transportation in Alberta, etc. Pupils and teacher should decide the extent of the enterprise. The pupils' interest, the available references, etc., will decide the trend the enterprise should take.

DATE LINES FOR ALBERTA

1691	Henry Kelsey of the Hudson's Bay Company sighted the eastern boundary of Alberta
1751	Chevalier de Niverville was sent by Pierre la Vérendrye to establish Fort la Jonquière three hundred leagues above the forks of the Saskatchewan: thought to be the present location of Calgary
1754-55	Anthony Henday of the Hudson's Bay Company came west to establish contact with the Blackfoot Tribe. Saw Indians on horseback. First white man to enter Alberta, first to see the Rockies
1777-78	Peter Pond, one of the pedlars, crossed Portage la Loche from Isle à la Crosse to the Clearwater, went down the Athabasca and established the first trading post on the Athabasca
1778	Fort Chipewyan founded
1787	David Thompson came to visit the Blackfoot Tribe near present site of Calgary
1789	Alexander MacKenzie reached the Arctic from Fort Chipewyan
1792-94	Peter Fidler explored and mapped the Athabasca River and North and South Saskatchewan Rivers
1792	MacKenzie went up the Peace, crossed the mountains and descended to the Pacific which he reached in July, 1793
1802	Fort Augustus founded on the banks of the Saskatchewan where Edmonton now stands
1821	The North West Company and the Hudson's Bay Company united
1847-48	Paul Kane visited Fort Edmonton
1857-60	A survey of the West was made by Palliser for the British Government
1874-75	The N.W.M.P. came west. Established headquarters at Macleod
1876-77	Treaties with many Indians in Alberta regarding reserves. Release of territorial rights
1883	Canadian Pacific Railway built through Calgary
1885	Northwest Rebellion—Frog Lake Massacre
1886	Southern Alberta's biggest round-up
1889	The Mormon settlers came to Southern Alberta
1903	The coming of the Barr colonists
1905	Alberta became a province of the Dominion
1924	Turner Valley Royalite #4 began producing oil
1944	Alaska Highway completed to Fairbanks
1947	Oil discovered at Leduc
1949	MacKenzie Highway to Hay River built
1950	Completion of the Inter-provincial pipeline
1951	Completion of the St. Mary's irrigation dam
1953	Trans-Mountain Oil Pipeline Company built line to west coast
1958	Completion of Trans-Canada Pipeline to carry gas to Toronto and Montreal


1905 Alberta became a province
Mounties start march across the plains 1874
Building of C.P.R. 1885
1867 Canada became a nation
1959
1939
1919
1899
1879
1859
1839
1819
1799
Present day Alberta
The Pioneer Settlers
Missionaries and Traders Came
Explorers Came
1933 Hitler came to power
1914 U.S. opened Panama Canal
1866 Laying of Atlantic Cable
1869 Gt. Br. opened Suez Canal
1837 Dickens wrote "Oliver Twist"
1824 Beethoven's Choral Symphony
1815 Battle of Waterloo
In 1800 there were 1,000,000 people in London
1803 Louisiana purchased from Napoleon

PROBLEMS FOR STUDY

Problem Areas for Study	*Concepts* and Suggested Activities	*References*
1. An understanding of the location of Alberta as related to: Canada North America Other parts of the world Alberta's location as regards flying time from: Calgary to Montreal Edmonton to Vancouver Edmonton to London via the Polar route	*The pupils should have the feeling of where Alberta is in relation to Canada, North America and the world in general. Some understanding of latitude and longitude in relation to Alberta:* *(1) 49th parallel* *(2) That latitude and longitude are used for purposes of locating areas, Range lines, townships, sections, etc.* *Time zones in Canada: Alberta is in the Mountain Standard Time Zone. Eastern zones are ahead of us, western zones behind.* *Discuss flying distance, distance by railroad, bus, etc., between various points.* *In reading maps learn to avoid using the terms "up" and "down".* *Enrichment:* For advanced pupils further study of latitude and longitude, Greenwich, International Date Line, division of earth into 24 time zones. Discuss great circle sailing, flying, measure on globe. Discuss distance to London via polar route and distance by Montreal route.	Use a globe rather than a flat map as much as possible. Information from T.C.A., C.P.A. and railroad timetables. *Living in Canada* pp. 160-62. *Lure of the West* pp. 26-34.
2. Some understanding of what prehistoric times were like in Alberta.	*The pupils should realize that pressures cause land to rise and fall, slowly, over very long periods of time. Alberta was once covered by shallow seas before the Rockies were formed, and different climatic conditions existed.* *Activities* Visit a museum to examine fossils. Pupils in the southern part of the province should see dinosaur models on St. George's Island, or visit the Badlands.	*Alberta, Western Treasure Chest.* *Exploring Science, Bk.* 5 pp. 64-70. *Discovering Our World, Bk.* 3 pp. 271-284. *Adventuring in Science,* pp. 98-109. *Lure of the West,* pp. 41-47. *Story of Our Prairie Provinces,* pp. 5-37.
3. An understanding of the topography of Alberta. Where are the mountain ranges? Where precisely are the foothills? How much of Alberta is open plains? How much of the province is parkland?	*The pupils should be aware that the land slopes to the east from the Rockies. They should have some idea of what mountains, foothills, parklands and open prairies look like.* *Activities* Discuss natural boundaries as compared with artificial boundaries and decide how much the Alberta boundary conforms to the natural one. Make a large relief map of Alberta as the various areas are determined.	Visual relief maps. Maps from Department of Lands and Forests. See suggestions p. 77. Directions for map included. See recipe for papier maché and use contour map to make relief map. *Living in Canada* pp. 10, 61, 79, 88. *New World Horizons,* Ch. 5. *Canada and Her Neighbors,* pp. 111-119. *Alberta Province of Opportunity* (T.R.)

Problem Areas for Study	Concepts and Suggested Activities	*References*
4. The characteristics of Alberta weather. What are the characteristics of Alberta's climate? What are Alberta's temperature ranges? What is Alberta's average yearly rainfall? How is our climate affected by the winds? What is a Chinook wind? How much moderating effect has it on Alberta's climate? What causes air pressure? How is weather forecast? What effect have the mountains upon our climate?	*The pupils should be aware of the reasons why Alberta's climate is more moderate than that of Saskatchewan.* *Activities* Obtain and study a weather map (Meteorological Bureau, Ottawa). Visit a meteorological station. Examine a barometer, anemometer, etc. Keep a daily noon time temperature chart. If possible weigh air to show that it has weight. Discuss weight or pressure of air at sea level and on mountain sides.	*Alberta Province of Opportunity* (T.R.)
5. Some appreciation of the importance of Alberta wild life. What advantages are there to the protection of fur-bearing and game animals? What is meant by the balance of nature? How is it upset when man interferes? What is a wild flower preserve and what is a bird sanctuary? Where in Alberta are wild animals preserved?	*Pupils should appreciate the importance of wild life and the place each kind of life has in our world. There should be reverence for life of all kinds.* *Activities* Locate Dominion and Provincial Parks on a map and learn purpose of making parks in this area. Discuss how to start a wild flower preserve. Make a list of wild flowers that grow locally and keep a record of dates when first seen. Make a mural of local flowers. Collect, press and mount good samples, but do not touch rare flowers. See a film on Alberta birds and animals. Organize a bird-watching club. Keep a record of dates when migrating birds seen.	Reference material in this resource unit. Material from Wild Flower Preservation Society, Washington, D.C. (T.R.) *Lure of the West* pp. 21, 58, 6, 68-9, 151, 204, 229. *Alberta Western Treasure Chest* *The Birds of Alberta* (T.R.)
6. To know something of the history and culture of Alberta's native tribes. In what ways did the coming of the white man injure the Indians? Did the white man bring any good to the natives? What evidence have we that the Indians are becoming a mature people? What help does the Government give the Indians and their families?	*Pupils should realize that the Indians although behind in development were far from being an inferior people and that the white man took their land from them in an arbitrary fashion.* *Activities* The Old North Trail by which many Indians came into North America followed the Edmonton - Calgary - Fort Benton route. Find other trails used by wandering tribes in your area. Make a collection of miniature Indian weapons and other materials such as tomahawk, bow and arrow, canoe, wampum belt, travois, teepee, etc. Make sketches of buffalo pounds, and of Indian equipment such as skin kettles, papoose, moss cradle. Draw map showing location of ancient tribes in the West. Discuss some Indian superstitions and compare them to present day superstitions of people who consider phases of	*Blankets and Beads* (T.R.) *Whoop-up Trail* (T.R.) *Lure of the West* p. 59. *Story of Our Prairie Provinces*, Ch. 9, 10. *Totem, Tipi and Tumpline* Part I, pp. 6-75. *Book of Indians*, Ch. 3, 5, 6. *Long Ago*, Units 3, 4. *Great Chiefs and Mighty Hunters* (P.R.) *Indians in Winter Camp* (P.R.) *Three Little Indians* (P.R.) *White Hawk* (P.R.) *Little Indians* (P.R.)

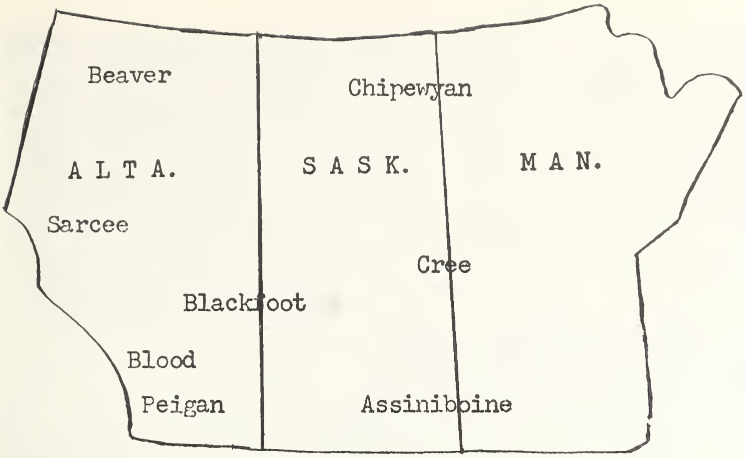
Problem Areas for Study	*Concepts and Suggested Activities*	*References*
7. To appreciate the contribution the early explorers made to the development of the province. Who were the first white men in Alberta? For what reasons did the explorers come to the western prairies? In what way did their coming effect changes in living for the natives? What kind of wild life was in Alberta at that time? What were the difficulties in living in the great North West?	*The complexities of modern living removes from the experience of many people what living off the land really means. Pupils should have some idea of what it means to live out on the prairies in a tent in sub-zero weather and to travel without a map, a road or knowledge of where the next meal is coming from.* *Activities* Discuss the contributions of such men as Thompson, Pond, Mackenzie, Henday and Henry. On the plastic relief map show routes of the explorers.	Reference material in this resource unit. *Lure of the West* pp. 65-119. *Land of the Chinook*, Ch. 5, 10, 12. *Living in Canada*, Ch. 15-21. *Long Ago*, Unit. 7. (See instructions under activities)
8. To understand the need for policing the prairies. What was the whisky trade? Who were the whisky traders? What made the Indians and half breeds hostile to the incoming white settlers? What events led to the Saskatchewan Rebellion? What clashes took place in Alberta? What steps were taken by the government to end the conflict? Who assisted in settling things amicably? Did the Canadian police handle Canadian Indians more successfully than those south of the border were handled?	*The problems facing the Indians and half breeds should be appreciated also the fact that Canadians in the East had little realization of the problems of the West and that the Canadian Shield made a great barrier between the two parts of the country.* *Activities* Collect pictures of early R.C.M.P. uniforms. Learn original requirements for police, present requirements, kind of training given, etc. Read stories of Sitting Bull and how the Mounted Police handled the influx. Read of Piapot, and of the attitude toward the police in Fort Benton on the Missouri.	*Whoop-Up Trail* (T.R.) *Famous Canadian Stories*, pp. 178-186. *Land of the Chinook*, pp. 42-62, Ch. 16. *Living in Canada*, pp. 366-369. *Lure of the West*, pp. 49, 141-146, 240. *Story of Our Prairie Provinces*, Ch. 20.
9. To appreciate the efforts of the early missionaries who came to help the Indians and the early settlers. To what extent did the missionaries offset the evils brought by the white man? What evidence have we of the success of the efforts of such men as McDougall, Lacombe, Rundle, etc.? In what way did the missionaries prepare the natives for the settlement of the West by the white man?	*Pupils should realize that the traders who searched out the Indians often represented the worst of our civilization and that their effect was offset chiefly by the influence of the missionaries.* *Activities* Make a mural showing Father Lacombe and the Indians making the first bridge in Western Canada. Make a list of the hardships endured by the missionaries in the West. Dramatize the visit of a missionary coming to an Indian camp.	*Lure of the West*, pp. 158-165. *Living in Canada*, pp. 218-19, 227, 363-66. *Story of Our Prairie Provinces*, Ch. 25, 26. *Famous Canadian Stories*, Part 8. *Land of the Chinook*, Ch. 15-20. *Alberta Western Treasure Chest.*

Problem Areas for Study	Concepts and Suggested Activities	References
10. To appreciate the contributions of the early settlers of Alberta. What was life like in and around the early trading posts? What settlers came in groups to take up large tracts of land? In what way did the railway assist in the settlement? What happened to the fur trade when settlement began? What share did the Hudson's Bay Company have in land settlement? What hardships did the settlers face in Alberta? What happened in the part of Palliser's Triangle which is in Alberta?	*Pupils should begin to realize they accept a great deal that has been done in the past without much thought or appreciation of the work of the people who built their community.* *Activities* Interview an elderly resident of the community for information about the community history. Make a loose leaf book in which the history of the community is given. Each pupil could gather material from a reliable source and finish the story in india ink and manuscript writing. Entitle the book "The Story of Our Community". Place it in the school library. See a film on early days in Alberta. Discuss problems facing settlers preparing for winter, especially for their first one in the West, e.g., shelter, water, food, warmth. What lack of vitamins was in the settlers' diet and what disease resulted?	*Land of the Chinook*, Ch. 5, 10, 12, 16. *Living in Canada*, Ch. 15-21. *Long Ago*, Unit 7. *Lure of the West*, pp. 171-184. *Story of Our Prairie Provinces*, pp. 100-9, 132-9, 165-173.
11. Appreciation of the importance of transportation in the settlement of the west. What kinds of boats were used on the rivers in the times of the great fur-trading companies? What did the mule trains from Fort Benton carry? How long did they operate? What were the characteristics of the Red River cart? When were they used? What changes did they bring to Alberta? When was the railway begun? What kind of men were responsible for putting it through? What difficulties were experienced in building it? What changes came about as a result of the coming of the railway?	*Pupils should understand that changing modes of transport are changing our people and their ideas of space and distance.* *Activities* Make a collection of pictures of vehicles of transport from early days to present jet planes, diesel trains, latest cars. Make a transport mural. Make a map of our present transportation system within the province showing railways, main arterial highways, water routes, etc. Compare time taken on various routes in former days and today, for instance Edmonton to Calgary, Edmonton to Vancouver. Discuss how lack of hygiene and a safe water supply resulted in such diseases as typhoid and dysentery and how the limited diet of for instance the railway workers lowered resistance to these diseases. Discuss some of the work of the bush pilots.	*Lure of the West*, pp. 52, 62, 194, 204. *Living in Canada*, Ch. 19. *Canada and Her Neighbors*, pp. 133-35. *Story of Our Prairie Provinces*, Ch. 17, 21, 52. *Land of the Chinook*, Ch. 5, 14. *Whoop-Up Trail* (T.R.)
12. To appreciate the wealth of our forests. What are the native trees of Alberta? Where are our lumbering and pulpmill industries located? What connection has water conservation with the growth of trees and plants?	*It is essential that students have some knowledge of the importance of forests for industry, for conservation of water and as a home for wild life.* *Activities* Collect and identify leaves of all local trees. Find out about the work and aims of the Eastern Rockies Forest Conservation Board. Find out what insects are harmful to trees. Try the experiment with bare and covered hillsides to see the value of a forest. Make "Keep Alberta Green" type of posters for bulletin board display.	Reference material in this resource unit. *Alberta Forests* (T.R.) *Forest Conservation* (T.R.) *Alberta Province of Opportunity*, (T.R.) *Picture Map Geography of Canada and Alaska*, pp. 66-75.

Problem Areas for Study	Concepts and Suggested Activities	*References*
13. To appreciate Alberta's soil fertility and its effect on farming. What are the main kinds of soil in Alberta? What causes soils to be different? What kinds of farming are carried on in the various parts of the province? What are the valuable farm products of Alberta? What kinds of animals do best in Alberta? How has science changed farming methods?	*Pupils should realize that fertile soil is probably our most valuable asset and that on it depends the health of our people.* *Activities* Field trip to see top soil and sub soil. It might be observed that top soil is thicker under grass and that under trees, especially conifers, the black soil has been leached out and washed down deep into the sub soil. Collect data about depth of top soil in various parts of the province. Compare to depth of top soil in Manitoba and Saskatchewan. Reports on rust, smut, grasshoppers and other insects. Obtain samples of all grains grown in the surrounding district. Reports on development of Marquis, Saunders, Thatcher wheats, Victory oats, Olli barley, Lacombe pig, etc.	*Alberta Province of Opportunity* (T.R.) *Alberta Western Treasure Chest*, pp. 18-47. *Canada and Her Neighbors*, pp. 6, 15, 119-22, 125. *Land of the Chinook*, Ch. 12. *Living in Canada*, Ch. 22. *Lure of the West*, pp. 189-202. *New World Horizons*, pp. 123-130. *Story of Our Prairie Provinces*, Ch. 30, 31, 32.
14. To understand the uses and importance of the rivers and lakes of Alberta. What do terms up-stream, down-stream mean? What are the characteristics of a young river as compared to an old river? What causes lakes to form? What causes muskeg to form? Is much of the land in Alberta covered by muskeg?	*Pupils should consider our responsibility to the other prairie provinces in conserving water; they should consider the importance of rate of evaporation and should compare Alberta's rainfall with that of other provinces.* *Activities* Study a large-sized map of Alberta. Committee reports on various aspects of water problems, and the importance of fresh water, irrigation, drainage of muskeg, etc.	Encyclopedias under "Rivers" give comprehensive list and explanation of river terms.
What is meant by the term water table? What causes it to rise or fall? What can be done to raise the water table? Where in Alberta has irrigation been used successfully? What crops are produced in the irrigated areas? What is meant by Palliser's Triangle?	If near enough, visit an irrigation area. Reports on irrigation in various areas. Learn such terms as flume, etc.	*Alberta Province of Opportunity*, (T.R.) *Story of Our Prairie Provinces*, pp. 172, 192-5. *Living in Canada*, pp. 69-70. *Alberta Western Treasure Chest*, pp. 35-39.
In which Alberta lakes is fishing done on a commercial scale? What fish are native to our lakes? In what way do sewage problems spoil our rivers? To what extent has hydro-electricity been developed in Alberta?	It should be apparent that fishing is most important as a source of recreation for citizens and tourists. Discuss the tourist industry in Alberta and how we can make our lakes and rivers more attractive. Class discussion of better ways of disposing of sewage. Report on water problems facing Alberta.	

Problem Areas for Study	Concepts and Suggested Activities	*References*
15. An understanding of the rock formation in Alberta's mountains. What are the three classifications of rock? What causes rock strata? How are mountains formed? What fossils in the Rocky Mountains tell us about early ages in Alberta?	*Pupils should realize by the time they finish this section that there are a great many marvellous stories in rocks.* *Activities* Field trip to see rock formation and sub-soil. Collect different types of rocks. Examine pictures of Rocky Mountain strata. Obtain a fossil for study if possible. (Fossils are to be found in many parts of Alberta, sometimes in the river banks, sometimes in outcroppings of rock.)	Reference material in this resource unit. *Lure of the West*, pp. 41-2. *Story of Our Prairie Provinces*, Ch. 6, 7.
16. To appreciate the importance of our mineral wealth. What was Alberta's first mining industry? How has the discovery of large oil fields changed life in Alberta? What do we know of the early stages of the earth's history that relate to oil and coal? What secondary industries have arisen as a result of our mineral wealth?	*Pupils should realize that we are using up non-renewable resources at a very great rate, and that other parts of Canada wish to share in our wealth.* *Activities* Trace the rise and fall of the coal mining industry in Alberta. Report on coal mining areas, kinds of coal and their uses. Make a map showing all oil fields and old coal producing areas. Obtain samples of crude oil, tar sand, etc., if this is possible. Make a list of some other minerals in Alberta. *Enrichment for advanced students:* Construct a bar graph to show oil resources in Alberta in 1930, '45, '52, '57 together with those for current year if available.	*Alberta Province of Opportunity*, (T.R.) *Dynamic Decade* (T.R.) *Alberta Western Treasure Chest*, pp. 48-78. *Story of Our Prairie Provinces*, Ch. 36, 37, 39. *Canada and Her Neighbors*, pp. 130-132.
17. To appreciate the growth of Alberta's population and to know the location of the concentration of population. To know something of the origins of our people. Why does over half the population of Alberta live within 100 miles of Red Deer? Is the population slowly moving north? What racial groups are amongst our most recent settlers? Are they mixing with the population or do you find them in certain areas and therefore in certain industries?	*Pupils should know that there is a trend toward urbanization all over North America and that fewer people are needed in agriculture because of mechanization. They should also appreciate the fact that people of many nationalities have worked to build Alberta.* *Activities* Compare population maps with climatic map, and with soil map. Add population centers with colored pins to concentrated areas on plastic relief map. Make a survey of the various races found in your community. Report on some of the interesting customs they have brought with them from their homelands.	*Canada Year Book* report on immigration (T.R.) Reference material in this resource unit. *Alberta Province of Opportunity*, (T.R.)

CONTENT MATERIAL



INDIANS OF THE WEST

Map Showing Location of Indian Tribes in Ancient Times

We have no reason to believe that the American continent was always inhabited by human beings for the earliest Indian remains are less than 20,000 years old. Various theories have been put forward as to how the Indian tribes first came to America, but it is now generally accepted that they came from the eastern tip of Siberia to the western tip of Alaska between 15,000 and 20,000 years ago. The Bering Strait at this point is only forty-two miles across and there are two islands in the middle, making a boat journey even in primitive craft quite feasible. Migrations must have gone on for thousands of years with the Indians coming in waves, until eventually they and their descendants covered all the land as far south as Tierra del Fuego.

Across the continent the Indians have several characteristic features: the skin is always some shade of brown, the hair straight and black, the cheekbones wide, the eyes dark and often slanted, but there are many variations. In British Columbia the Indians for instance are smaller than those east of the Rockies, who are of medium height, and across Canada the breadth of face and shape of head varies considerably. Although physiologically of the same type, their languages, ways of life and customs differ widely and they have been divided in Canada into the following cultural areas: migratory tribes of the eastern woodlands, agricultural tribes of the eastern woodlands, plains' tribes, tribes of the Pacific coast, tribes of the Cordillera, tribes of the MacKenzie and Yukon River basins and the Eskimos. Many of the different ways of life of the various tribes can be accounted for by the type of country in which they lived: for instance the Indians of the Pacific coast had an abundant supply of fish available, and so were able to settle in permanent dwellings and attain a higher cultural standard than the plains' Indians who were nomadic as they had to follow the buffalo herds.

The Indian tribes who inhabited the prairies were largely dependent on the buffalo for food and also for materials for clothing, shelter and tools. It provided them with meat which was eaten fresh and made into pemmican by drying and pounding processes. To cook the meat the women dropped hot stones into buffalo skin bags which contained water and small pieces of meat. Pots and pans were unknown to them and would in any case have proved an encumbrance in their nomadic life. From the hide of the animal came leather for their clothing and for their teepees; the sinews were used for bow-strings and for sewing, the bones for spears, primitive needles and arrowheads and the dung for fuel. Until the arrival of the white man the economic structure of the plains' Indians' life was entirely dependent upon the buffalo.

One large herd of buffalo passed the winter in the parkland between the Red Deer River and the North Saskatchewan and when spring came it moved slowly into the plains and by the middle of summer had reached the border country. Then it moved north again. The Indians would stay in a camp for several weeks until the buffalo had moved out of range, and then they would move their tents to be close to the herd once more. The animals were often caught by the Indians driving them into a type of corral or pound; this was done by chasing them between lines of stakes which narrowed into an enclosed compound where they were then slaughtered. Another method was to drive them over to the edge of a cliff, or jumping pound, where they were badly injured or killed. Witness to this type of slaughter are the large mounds of buffalo bones which have been found in many places in Alberta, and the name Jumping Pound.

The clothing of the plains' Indians was entirely made of skins until cloth was brought into the country by the traders. Clothing consisted of a breech cloth for men, and a shirt if it was cool, leggings and moccasins and a winter robe. The women wore two skins which were laced together up the sides. The tanning was a long and tedious business, and as

A Buffalo Pound, by Paul Kane

Courtesy Royal Ontario Museum

much as seven days' work was necessary for a large skin. Vegetable dyes were used to decorate the clothes. Many of the colorful ornaments nowadays connected with the Indians originally had magical qualities and were worn more often as a protection against evil spirits than as decoration. When the white traders came and brought colored beads, these were used abundantly for decorative purposes. Normally the Indians wore nothing on their heads except in winter and the feather head-dresses which are thought to be so typically Indian were in fact worn originally only by a few important Sioux braves.

Although in winter some of the Indians of the Prairies made cabins, they lived mostly in teepees. These were made of skins, with often twelve or fourteen buffalo hides being used, and they measured on an average eighteen feet across. They were made, set-up and owned by the women. Inside there would be skins for beds with sometimes other skins stretched on frames to make backrests at the head of them. Above them on a tripod hung the medicine bundle, a treasured possession which was to ward off evil. As is common with most primitive tribes the Indians had little idea of hygiene and seldom washed. Inside the teepees, which would often be full of smoke because of poor ventilation, remnants of meat lay rotting on the floor and mice and parasites abounded.

In the days before the advent of the horse the only animal the Indians were able to utilize was the dog and they devised the travois as their chief method of transportation in the snow. This consisted of two poles roped to the dog's neck with a bag net between them. It must be remembered that until the coming of the white man the Indians had no knowledge of the wheel. Snow shoes were used, and so were boats made of skin, known as bull boats for crossing rivers.

The social organization of the Indians across the country depended quite often upon the type of country and upon the abundance of food to be found. Where there were not enough fish and animals to feed large numbers of people, families moved and hunted alone. In the prairies, however, many people were needed to drive the buffalo into pounds, and the Indians here roamed the country in bands each tribe having its own fairly well defined territory. All the bands of the tribe would meet in the summer, with the tents placed in a circle round that of the head chief.

As the Indians in common with most primitive people were unable to give any scientific explanations of the things that happened around them, their religion was highly supernatural. Unable to comprehend many natural phenomena they regarded these as the manifestations of the all-father. Bad spirits brought sicknesses and storms and the good spirits health and sunshine. These powers had to be propitiated and Thompson recalls a Cree as having said, during the great smallpox epidemic of 1781-82, "What little we could spare we offered to the Bad Spirit to let us alone and go to our enemies. To the Good Spirit we offered feathers, branches of trees and sweet-smelling grass". Amulets were worn to protect their owners, numerous taboos arose to prevent the Spirits from being offended and over all the medicine man reigned supreme. One of the greatest religious events amongst the plains' Indians was the Sun Dance which followed a ceremonial buffalo hunt: a pole was hung with offerings to the Great Spirit and the dancing and feasting continued for several days. In some cases the young men of the tribe had to prove themselves worthy of being braves during this ceremony and withstand various tortures.

Burial customs varied with the tribes: sometimes the bodies were buried, and the Assiniboines lined their graves with bark. Important people were occasionally left in their teepees, some tribes hung the bodies on poles or trees with their feet turned towards the west, and yet others buried their dead beneath cairns. In many cases the dead were dressed in their best clothes and left a supply of food to help them in their journey to the "happy hunting-grounds".

Early in the 16th century the Spaniards brought horses into Mexico and the first horses which had spread gradually northward from there were on the plains by about 1730. The life of the plains Indians, which had continued along the same lines for centuries, changed rapidly with the coming of the horse. Large distances were more easily covered, and bands of foot hunters who had once been fairly isolated now turned into bands of fleet warriors and the field of conflict between the tribes widened. The standards of value also changed as horses could now be used for the purchase of a wife for instance. Raids and robbery became prevalent. Always warlike by nature, the Indians started fighting on a larger scale. It was now easier to catch the buffalo than when they had to be chased on foot: the buffalo herds started to be depleted as the Indians killed as many as they wanted and ate only the most delicate portions, leaving the rest of the carcass to rot.

While the wars between the tribes continued and the buffalo herds were being diminished, white traders had established posts in the west. The whole economic system of the Indians now changed. The white man demanded ever more hides: the use of guns made buffalo hunting even easier and the vast herds were decimated. The Indian no longer had to hunt for food and clothing as these could be obtained from the trading post in exchange for furs. In exchange for these furs he could obtain things that became daily more precious to him—arms, ammunition, alcohol and gaudy ornaments. He had soon depleted his own hunting grounds of the small fur bearing animals and invaded his neighbor's territory. This resulted in further skirmishing. In view of the armed bands roaming the country lone families and small bands had little chance of survival so the Indians came to live in larger camps. Iron weapons replaced the primitive ones which had always been used and new generations were not taught the old skills. Thus the tribes became more and more dependent on the trading posts for their very survival. Another factor which contributed to their downfall was alcohol which could also be obtained from the traders. The Indians had no immunity to the new diseases brought by the white men and smallpox, tuberculosis and measles reduced their numbers by thousands. For instance in the smallpox epidemic at St. Albert in 1870 three hundred Indians and half breeds died out of a total of one thousand. For the Indians the horse, the gun, smallpox and alcohol were the beginning of the end. Their mode of life had to change, their old charms were powerless against the new diseases, the newcomers controlled most of things that had become important to them and their primitive beliefs would not stand up to the new civilization. The white man had taken over the land and the Indian could no longer lead the life to which he had been accustomed for centuries. The inevitable rise and fall of nations had taken place and their hour of glory had passed for ever.

THE EXPLORERS

We think that of all the white men who visited the great plains Henry Kelsey was the first. In 1691 Kelsey with a group of Assiniboine Indians started off for the homes of the Indians in the Saskatchewan Valley to invite other tribes of the interior to come to Fort Nelson on the Bay to trade.

Kelsey saw the wooded land north of the Saskatchewan and the great rolling prairies to the south covered with buffalo. He travelled five to six hundred miles inland from the Bay but did not get as far as the eastern boundary of Alberta. Nevertheless he was well into the Saskatchewan area and he returned to the fort with a good number of Indians and a large supply of furs. The governor was well pleased with the results of his journey.

His popularity with the Indians was very great. He had made himself one of them; he had won their admiration for his skill with a rifle by shooting two grizzly bears one after another with single shots. Thereafter he was known to them as "The Little Giant". Henry Kelsey was the man who started the Assiniboine Indians coming to the Bay to trade, and he was the first white man to see the buffalo on the prairies.

La Vérendrye as representative of the French traders came next to the prairies with his sons in 1738. As an ultimate goal he was searching for a route to the Western Sea and establishing trading posts for the French as a secondary task. La Vérendrye erected Fort Rouge where Winnipeg now stands; Fort La Reine, now Portage La Prairie, and went on from this point to visit the Mandan Indians. Pierre and François, his sons, set off from the Mandan camps to try for the western sea. They got as far as the great range of snow capped mountains but they were in the land of the dangerous Snake Indians. Their Bow Indian guides fled and they had to turn back.

On another trip west the sons built Fort Dauphin and on the Saskatchewan, Fort Pasquia, now called the Pas.

Upon returning to Montreal they made plans with La Vérendrye himself to make a dash for the sea by way of the Saskatchewan. La Vérendrye died in the midst of the preparations and a new governor soon came on the scene. He was more interested in getting furs than in exploration. The sons were not favored by the new governor, and as a result they were neglected and soon forgotten.

These men were the forerunners of western exploration and though not connected with Alberta directly they nevertheless contributed to its later discovery.

ANTHONY HENDAY

When the Hudson's Bay Company was feeling the effects of French enterprise in the West the Company decided to send out a bold daring adventurer who would persuade the western Indians, particularly the Cree and Blackfoot tribes, to go to the Bay with furs.

The job fell to Anthony Henday, an outlawed smuggler from Britain who had come out to Hudson Bay to seek his fortune and to get away from his past. Henday was delighted with the prospect of his journey and so it was that in June of 1754 he left York Factory with a party of four hundred plains Indians who were returning to the Saskatoon area from a trading expedition to the Bay. The prospect of wandering with a band of Indians appealed to Henday who was both fearless and reckless and who in turn inspired the admiration and respect of the Indians by his love of adventure and his daring.

After leaving the Bay and coming through to Lake Winnipeg he arrived at the old fort at the Pas (then known as the Pasquia), that had been built by the French, and was greeted with warmth and offered pleasant hospitality by his French host. After a couple of days he journeyed on and within a week's time reached the point where the Carrot River flows into the Saskatchewan.

Here the party left their canoes and journeyed out across the plains. The Indians were delighted at the prospect of obtaining buffalo meat for they had been living on fish for a long while. Near Saskatoon some of the Indians rejoined their tribes but others continued on with Henday who went into what is now Alberta by way of the Battle River and crossed the Red Deer River.

Near the present town of Three Hills Henday saw his first band of Blackfoot. He had been consumed with curiosity to see these Indians who rode horseback and was much taken with their ability to hunt the buffalo by this means. They made buffalo skin pads for a kind of saddle, halters of hair and stirrups of skin.

Henday had been instructed by the Company to teach the Blackfoot Indians how to trap the beaver, how to prepare the skins for market, how to make canoes and manage these craft in swift water. He was to urge them to bring their cured skins by canoe to the Bay to trade. Henday had also been commissioned to keep track of the inland waterways, the vital arteries of communication in those days. The Blackfoot, however, were not anxious to learn and Henday was not successful in his mission. The Blackfoot chief in answer to his proposals said, "Your forts are too far away, and my people could not live without buffalo meat. My young men do not understand canoes, they only know horses; they cannot live on fish. Why go to the white posts anyway? There is much food on these plains and with bows and arrows we secure all we need. Also I have been told that the Indians who frequent the white settlements often starve." The old chief was courteous but firm and Henday had to agree with some of his arguments.

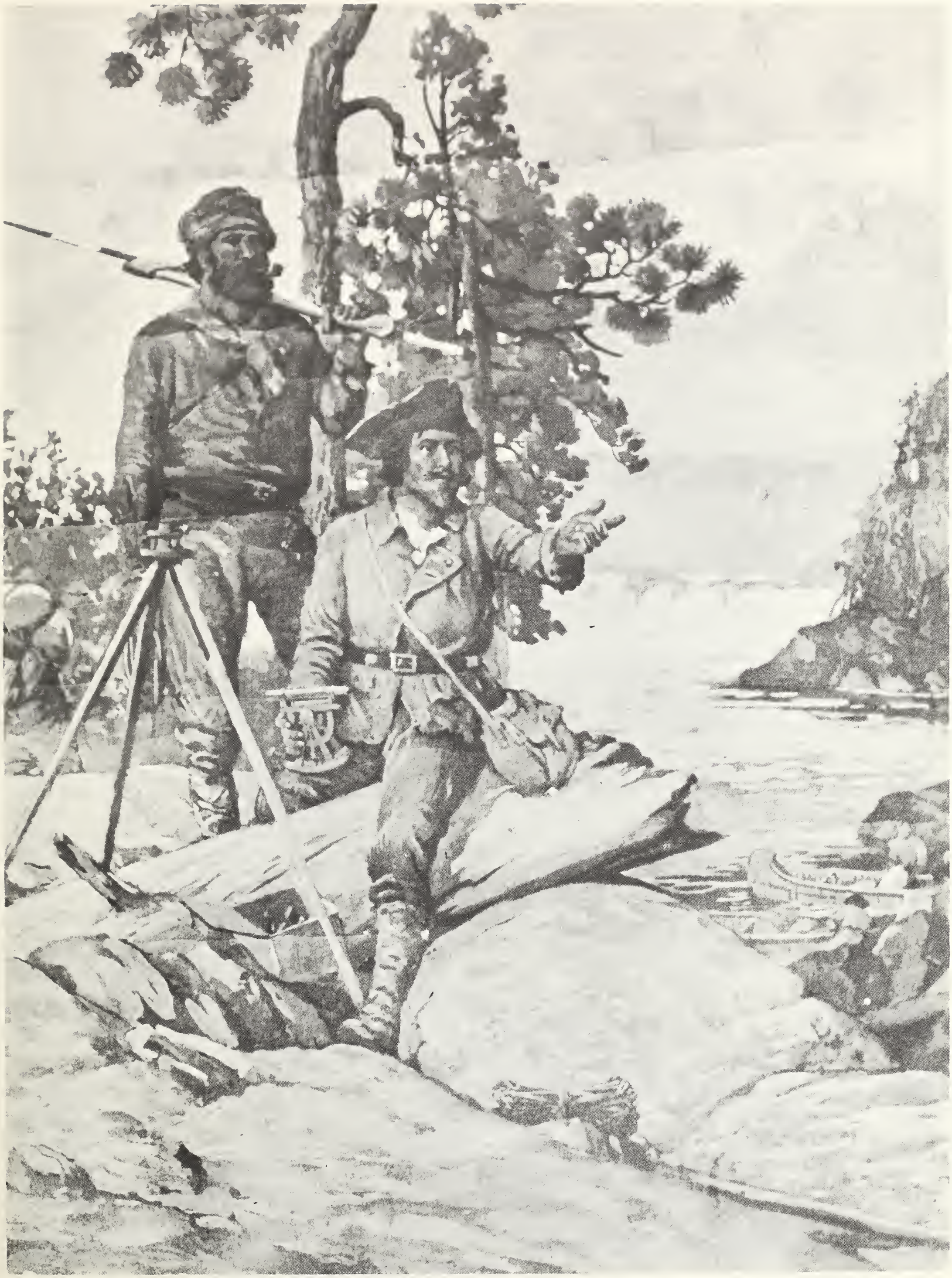
With the Indians Henday went north to some place between Red Deer and Rocky Mountain House for the winter, and was therefore one of the first white men to see the snow-capped Rockies. Then he made a circle north to the Saskatchewan River and close to Edmonton the men stopped to build boats at a point now thought to be Fort Saskatchewan. Here Henday took leave of many of the tribe with whom he had spent the winter. Among them was an Indian wife to whom he said farewell. He probably promised to return but Henday, like many a white man, never returned. At Fort Saskatchewan they all celebrated St. George's Day (April 23) after Henday had told them about St. George and the Dragon. The river was still high from the melting snows and spring rains when they started the return journey and the rushing waters carried them along with a minimum of effort.

At La Corne the French welcomed Henday but behind his back plied the Indians with so much liquor that the French were able to get many of their best furs. At the Pas the same thing happened. Henday went the last stretch into Hudson Bay with only the heaviest of the pelts, but even these were welcome for the Hudson's Bay officials were in need of all kinds of furs.

On June 20 the party reached York Factory. The news about the attitude of the Blackfoot tribe was disappointing and the officals refused to believe that the Indians of this tribe rode horseback, laughing scornfully at Henday's so-called day dreams. Henday got only twenty pounds for his work and permission to go inland again was refused. In disgust he went home to England.

DAVID THOMPSON

David Thompson explored and discovered more of Alberta than anyone else. Although his work was not as spectacular at the time as that of MacKenzie or even of Henday it is impressive because of



Thompson on Fraser River

Alberta Gov't Photograph, Ernest Brown Collection

its vastness and accuracy. Thompson's was a monumental work of uncovering the West and of documenting his findings. It is said that few men have had the opportunity of exploring half a continent and no one else has seized the opportunity the way Thompson did.

It is interesting to know the background of this great man and something of the early life which made him the man he later became. David Thompson was born in 1770 in Westminster, a part of London, and was educated in the Grey Coat School, a school for poor boys, whose principal aim was "to educate poor children in the principles of piety and virtue and thereby lay a foundation for a sober and Christian life". The training David obtained at his school remained with him and colored his thinking throughout the rest of his life.

Six years after David entered the school his name appears in the minutes of the meeting of the Board of Governors of the school. The minutes say that application had been made by the Hudson's Bay Company to obtain four boys for their settlements in America. The governors recommended that two of the boys who had been taught navigation, one of whom was David, would be suitable for employment in the Company.

The Hudson's Bay Company recorded soon after June 20, 1784, that David Thompson, "a mathematical boy", had been obtained from the Grey Coat School and was to be apprenticed to the Company for seven years.

A list of the books from which he studied (many of them were very old even at that time) is given here:

Title	*Author*	*Date of Publication*
Mechanics	Wallis	1655
A Treatise of Algebra	Wallis	1685
Thesaurus Geographicus		1695
Dialling	Leybourn	1682
Geography Anatomized	Gordon	1716
Epitome of the Art of Navigation	Atkinson	1711
An Idea of Geography	Newton	1708
A Survey of the Tide	Barlow	1717

From these books we see the heavy leaning to geography, mathematics and navigation in David's education.

David Thompson was just fifteen years of age when he was sent to York Factory on Hudson Bay in the year 1785. The ship actually set them down at Churchill and his first contact with Canada was a hundred-and-fifty-mile jaunt along the shore to York Factory. This was a trip David never forgot. He was accompanied by two Indians who were rewarded for taking good care of him by a present of three gallons of brandy and four pounds of tobacco.

For a year David did accounts at York Factory and learned something of the character of the country by helping in the game hunt for winter supplies.

At this time trading posts were being established by the Company along the Saskatchewan, as it had become increasingly difficult to get the Indians to come to the Bay to trade. It was decided to send a party west to view trading prospects, and David was chosen together with forty-six other Englishmen. He was fitted out with a trunk, a handkerchief, shoes, shirts, gun powder and a tin cup. The party was to go beyond Hudson's House, near the present city of Prince Albert, which was the most westerly post of the Company at that time. They established a post forty miles above Battleford which they called Manchester House.

At this time MacKenzie and Pond were up on the Athabasca but they were the only white men in the West.

From Manchester House Thompson and six others were sent to visit the Blackfoot and Peigan Indians to become friendly with them and to encourage them to catch beaver and some of the more valuable fur-bearing animals. Thompson spent the winter in the tent of an old Chief Saukunappee, and his friendship with this old chief helped him on trips through the country for many years. Thompson, who was by this time seventeen years old, reported the ways of the Blackfoot Indians in his diary, saying they were a happy untainted people.

After this trip David went back to Cumberland House where he took a series of astronomical observations. He placed the fort as accurately as geographers now do on their official maps of the West. This was the beginning of David's career as a surveyor. For thousands of miles on the western plains and over the Rocky Mountains he travelled by rivers and lakes taking observations on the sun and the stars. His accuracy was phenomenal.

Before returning to York Factory he spent four years in the Saskatchewan area. During his time here he visited the Blackfoot Indians on several occasions. It is interesting to note that he described the results of their raiding parties, saying that the Indians sometimes travelled great distances. In 1787, for instance, the Peigans sent out a war party against the Snakes and went so far south that they encountered a party of Spaniards in charge of mules laden with silver. The raiders threw away the silver, killed the Spaniards and returned home with their horses and mules. Thompson himself saw thirty of these horses and a dozen of the mules, together with the Spanish saddles and harness. He estimated that the raiders had travelled at least 1,500 miles.

From the Saskatchewan area he was sent south of York Factory for a short time to a rich muskrat country which the traders from Montreal were beginning to invade.

Thompson's next journey west was as far as Buckingham House, a fort built opposite Fort George, forty miles upstream from the Saskatchewan and Alberta boundary (north of the present town of Clandonald). The Hudson's Bay directors wanted Thompson to explore the Athabasca country but the traders in charge were more interested in fur trading than in exploring. However, Thompson did explore the Reindeer Lake area with a view to finding a new and better route into the Athabasca country. He travelled by Reindeer and Wallaston Lakes through to Lake Athabasca and on his return established a fort at Reindeer Lake in 1796.

In spite of the directors' wishes that this exploring be done, Thompson had been fitted out very poorly for the expedition. He had two untried, inexperienced Indians; he was given no canoe and had to make his own, and his food supplies were very poor. He was given a fishing net and a little ammunition and instructed to live off the country.

When he returned to Reindeer Lake, where he established the post, orders came through from Colen, the chief at York Factory, for him to stop surveying. This was the last straw! That winter Thompson completed his term of apprenticeship with the Company and left their service.

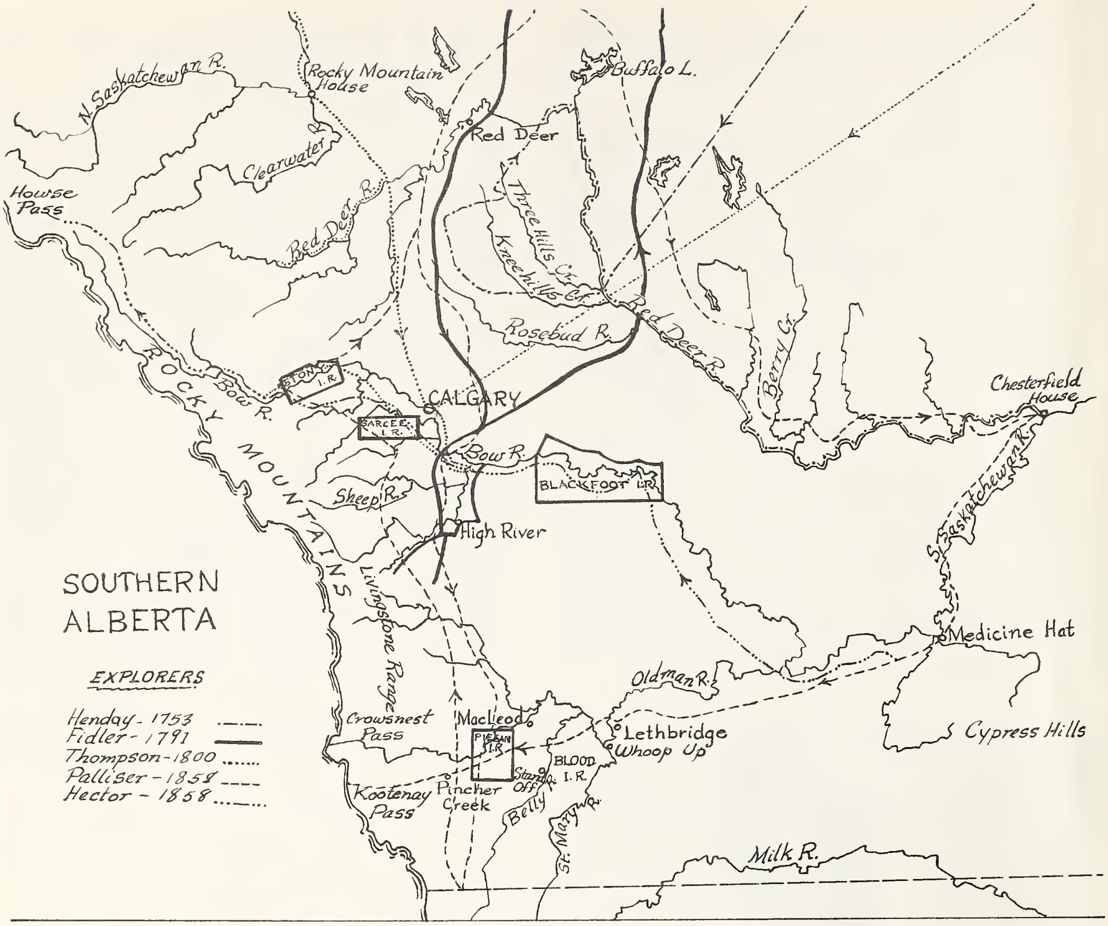
With thirteen years of service with the Company behind him Thompson now joined the Merchants of Canada (The North West Company) in May, 1797. He felt very bitter about the lack of appreciation Colen had shown for his work. However, if the Hudson's Bay Company had failed to appreciate him, the North West Company welcomed him with open arms.

The younger, more ambitious and progressive group was anxious to obtain knowledge and information about the country, and assured him a cordial reception. After he had sent in his resignation to the Hudson's Bay Company he walked from Reindeer Lake seventy-five miles south to the nearest North West Company post of Fraser's House. From there he went on to Grande Portage on Lake Superior, the western headquarters of the North West Company. En route he met such famous company as Roderick MacKenzie, cousin of Alexander MacKenzie and Simon Fraser who later discovered the Fraser River.

His first expedition for the Northwesters was a continuous surveying trip with no trading problems to restrict him. His assignment was to establish the 49° of latitude, visit the Mandan Indians in the

Mountain House Ruins. H. B. Fort Established 1802

Alberta Gov't Photograph, Ernest Brown Collection



Missouri area, search for fossil remains of large animals and determine the exact location of the various North West Company posts.

The beginning of this journey kept him in the Superior, Missouri, Assiniboine and Red River area for a time but the next summer he went west again to Lac La Biche, the headwaters of one tributary of the Athabasca.

In 1799 he extended his surveys to the Athabasca, and from Methy Portage on the canoe route to Lake Athabasca he started down the Churchill River to Grande Portage. At Isle à la Crosse he married a half-breed girl, Charlotte Small, daughter of Patrick Small, one of the earliest traders on the Churchill River. She was just fourteen years of age.

David took his bride with him to Grande Portage to get drawing paper and other supplies for making his maps of the western areas, then he went to Fort George, close to Buckingham House on the Saskatchewan where he wintered and drew his maps.

In March of that year he headed west to Fort Augustus, the present site of Ft. Saskatchewan, and went on up the Saskatchewan to Rocky Mountain House. This latter post was a strong fort, well prepared for possible attack by the Blackfoot Indians: the chimneys of the fort at Rocky Mountain House can still be seen there to this day.

From Rocky Mountain House Thompson spent two years exploring between the Bow and the North Saskatchewan and right to the foot of the Rocky Mountains. Then the next year he went to the post at the forks of the Peace and surveyed this river.

In 1805 Thompson went back up to Rocky Mountain House to get ready to go through the mountains for he had been given a new assignment. He was to discover the west coast country. Thompson was now himself in charge of the Rocky Mountain area and would lead the trading party through to the West.

In 1806-7 Thompson went through to the Columbia by way of Howse Pass. (This name was given to the pass though Joseph Howse went through it two years after Thompson. The Hudson's Bay Company had sent Howse after Thompson to see what the latter was doing and where he was going. After a year of exploring Howse gave up and the

Hudson's Bay Company gave the Columbia country up to the North West Company men.)

In 1810 Thompson had some trouble with the Peigan and Kootenay Indians who were mortal enemies and on this trip he was forced to go north to the Saskatchewan and on to the headwaters of the Athabasca before he crossed the mountains, and he reached the Columbia at the point known as the Big Bend. He thus discovered the Athabasca Pass which was to become the route used by later travellers to the coast.

In 1811 he followed the Columbia all the way to Astoria, at its mouth, in an effort to reach that spot before the American fur companies did. However, they had arrived a few months ahead of him.

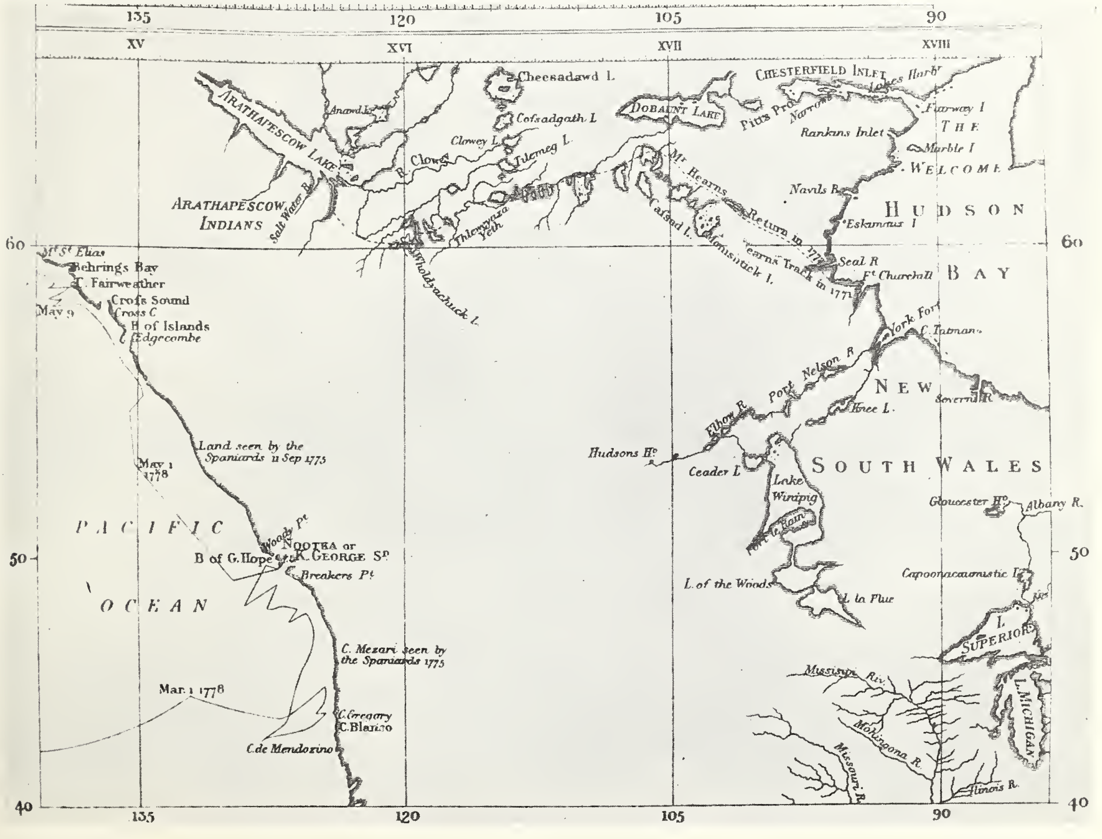
His survey of the Columbia was a great feat. Indeed we appreciate its greatness when we realize that at no time since the days of David Thompson has it been possible to make a complete survey of that river and thus today's maps at many points along the river show survey marks made by Thompson and not by any more recent surveyor.

In 1811-12 after twenty-eight years in the Northwest he went east to Montreal and never returned. The next two years he spent preparing his map of the West for the North West Company, using a scale of fifteen miles to the inch.

Thompson lived his last years near Montreal. His eyesight failed and he could no longer survey. His last days were passed in extreme poverty, as he had spent all of his savings to pay off his sons' debts. He was even reduced to selling his surveying instruments and his coat. On February 10, 1857, Canada's greatest geographer died.

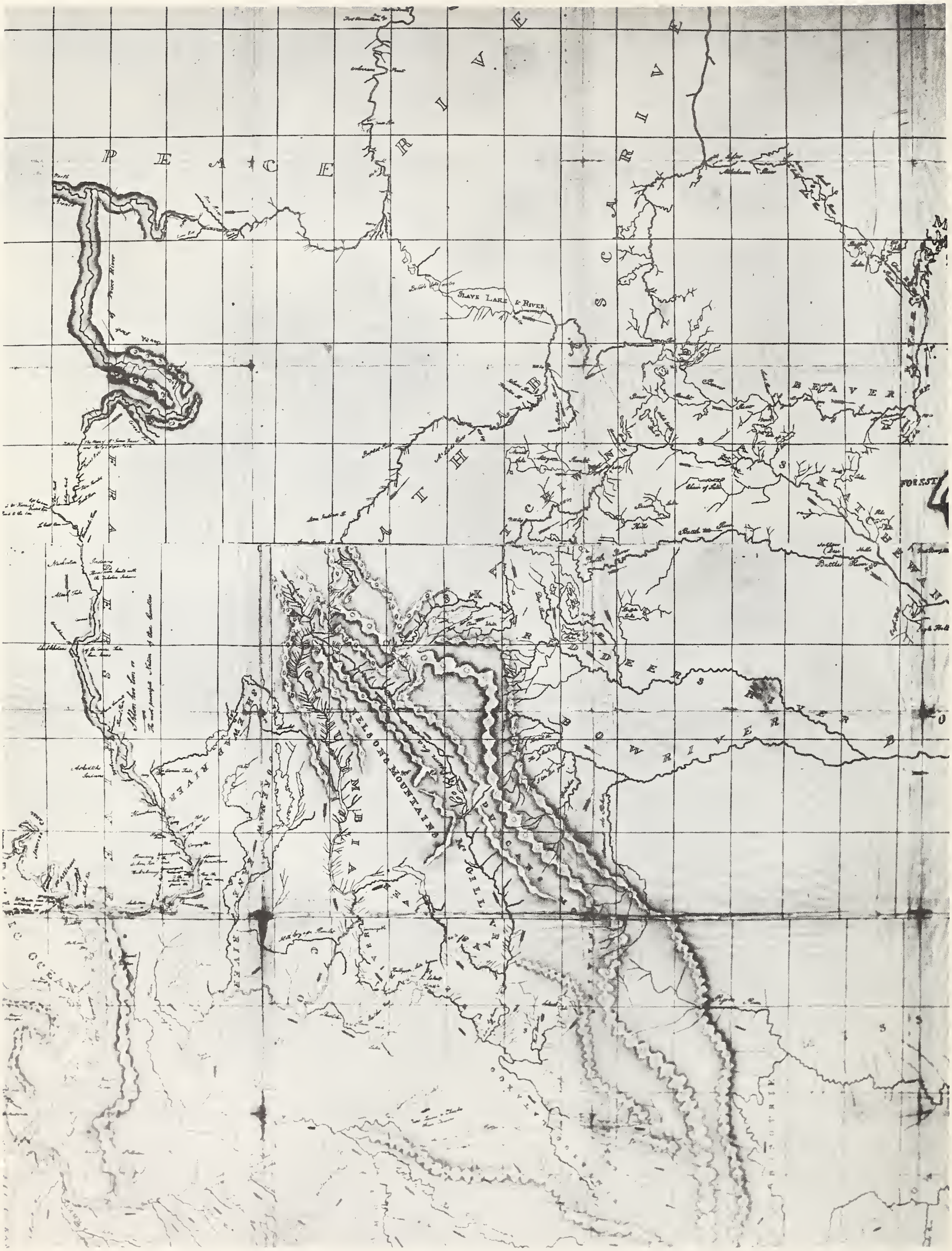
The maps enclosed are for purposes of comparison. The one shows our part of the world as it appeared in a map made after Cook's third voyage, and the other shows the detail that was added after Thompson's travels. These two maps tell the story of Thompson's achievements.

Please note that the names of the mountains and rivers have been changed since Thompson's time. The gaps in the mountain ranges indicate the places where he had not explored.



Part of the Map of the World in Cook's Third Voyage. Published in 1784, the year in which David Thompson landed at Fort Churchill

Alberta Gov't Photograph



Alberta Section of Map prepared by Thompson for Northwest Company
Alberta Gov't Photograph

MacKenzie's First View of the Pacific (Drawing)
Alberta Gov't Photograph, Ernest Brown Collection

THE PEDLARS

After the fall of New France to the British, the French fur trade came almost to a complete halt for the voyageurs had neither capital backing in Montreal nor markets in Britain for furs. Very soon, however, there came a group of English and Scots to bring new life blood to the trade through Montreal. They hired the French voyageurs who knew the routes and were skilled at handling the Indians and they brought with them capital for their new enterprises. These men had connections for the successful marketing of the furs.

This new group, called "pedlars" by the Hudson's Bay traders, followed the route made by La Vérendrye and his sons out on to the prairies. They came by way of Grande Portage on Lake Superior and it became their custom to go back east to this place and later to Fort William once a year, there to meet the merchants from Montreal and plan strategy for the coming year's business.

The first few adventurers went as far as the forks of the Saskatchewan, and Frobisher, one of the better known pedlars, established a post on Cumberland Lake in Saskatchewan and got much of the trade going up the Churchill River to the Bay.

As a result the Hudson's Bay Company sent Samuel Hearne to establish Cumberland House on the Saskatchewan just below the forks, and Matthew Cocking was sent out then to manage the fort. In this way the Hudson's Bay Company captured the trade from the Saskatchewan, stopping it from going down Lake Winnipeg and the Red River to the Montreal route.

The Company men had an advantage over the pedlars. The goods the pedlars traded came from Britain as did the Company goods, but the trip was further to Montreal than to the Bay and thus the goods cost more by the time they reached the fur trading posts. (One must always remember that the fur trading posts were not really on the prairie but in the woodlands north of the prairie country.) The Company traders had a direct route into this fur-bearing area while the pedlars had hundreds of miles to freight their goods by way of Montreal and the Great Lakes.

However, the enthusiasm and enterprise of these men made up in large measure for the advantages the Company had, for if they could get further west and get into a more strategic spot than the Hudson's Bay men, then the Indians who were ignorant of the advantages of trading with the "Bay" would deal with the pedlars.

PETER POND

Peter Pond was one of the most colorful early pedlars who had a great many "firsts" to his name.

In 1778 he was the first white man to go across the Methy Portage to the Clearwater and Athabasca Rivers. He was the first white man to see the bituminous sand outcropping along the Athabasca and the first trader to build a fort on the Athabasca. This post was called the "Old Establishment" and was built forty miles above the mouth of the river. He was the first man to grow a garden in northern Alberta.

Pond was the forerunner of Alexander MacKenzie. Pond no doubt had his dreams of discovery too, for in 1787 he prepared a map of western Canada for the Empress of Russia, showing a passage through to the western sea. On this map were many parts of the Northwest that it is certain Pond had not seen. (The Russians were interested in the west coast otter trade and had by this time claimed Alaska and much of the British Columbia coastline.)

The pedlars had formed a loosely knit company in 1776, and eventually in 1779 this was made into a properly formed share company, known as the North West Company. From time to time some of the North West Company employees broke away from their company to try trading on their own or with other partners. Several of these minor companies formed, and later were broken up or absorbed into the North West Company. The most famous of the splinter groups was the X.Y. Company whose name was made of the next two letters of the alphabet after the W. in North West. Bales of furs were thus labelled H.B. or N.W. or X.Y. according to the shippers. The X.Y. Company later found the going so difficult that its members rejoined the North West Company.

Pond who had a violent temper quarrelled with a trader called John Ross from one of these smaller rival companies and shot him. This was the second time Pond had been involved in murder and though life was cheap in the early days and there was no one to administer justice he was retired from the fur trade in 1788. Alexander MacKenzie took his place. Pond sold his shares in the North West Company to William McGillivray, who was to become one of the chief trading partners in the company. Pond went back to Connecticut and died there.

ALEXANDER MacKENZIE

Of much greater importance as an explorer was Alexander MacKenzie who was the first white man to reach the Arctic and the first white man to reach the Pacific Ocean overland north of Mexico.

Our outline of MacKenzie will be brief. Much has been written of his achievements, and we merely wish to give a condensed outline of his contributions as an explorer.

By the beginning of the nineteenth century there were seventy North West Company posts in the Canadian Northwest. Fort Chipewyan, MacKenzie's post, first placed on the south shore and then on the north shore of Lake Athabasca, was a source of many valuable furs. MacKenzie was known as a wintering partner in the Company, which meant that he was one of those who stayed out at the western post to trade during the winter.

At this time the "Bay" hesitated to go further than Isle à la Crosse Lake on the Churchill River System. Their charter gave them the right to the land in which the waters drain to the Bay. In the case of the Athabasca whose waters run north they really had no rights according to their charter, and this fact may account for the reluctance they showed to go into the territory beyond the Saskatchewan and Churchill River systems.

On June 3, 1789, Alexander MacKenzie, driven by curiosity to find a north west passage to China, left Fort Chipewyan with three canoes. He saw the ramparts on the river where the banks narrow in and the great limestone cliffs that rise two hundred and fifty feet above the river. Finally white whales and evidences of the tide told him that he was at the mouth of the river. In the distance he could see the frozen sea. On the way back he noted that at one place on the river's bank a seam of coal was on fire. This fire still burns today on a stretch of the river near Great Bear Lake. MacKenzie was back at Fort Chipewyan in a little over three months. He called the river the River of Disappointment but it was later named for him.

MacKenzie now dared to seek a route to the western ocean by going up the Peace. He had no idea how far it would be so sensibly he sent a group ahead to build a fort up the Peace where he could trade for the winter and which he could use as a jumping-off point for his trip over the mountains. This fort is thought to have been built about forty miles up river from the present town of Peace River Crossing.

On May 9, 1793, he travelled up to the forks of the Peace and along the Parsnip River until he could go overland to the Fraser. When he started down the Fraser he quickly realized that he was heading in the wrong direction so he crossed over once again to the Blackwater River and later to the Bella Coola. When he reached the channel at the mouth of the river (Dean Channel) he left his famous inscription, "Alexander MacKenzie, from Canada, by land, the 22nd of July, one thousand seven hundred and ninety-three" in vermilion paint on a large rock. The pedlars were filling out the map of Canada in a truly marvellous fashion.

THE ALEXANDER HENRYS

Alexander Henry, the Elder, was the second Englishman to get permission to journey west over the Montreal route after Britain had taken Canada from the French. He is therefore classed as one of the pedlars.

His story does not much concern us now for he went into northern Saskatchewan with the Frobishers and Peter Pond, and his explorations did not take him into Alberta.

He is best known to us for his descriptions of the life of the Indians of the plains, buffalo hunting and the methods used for driving these animals into pounds.

His nephew, Alexander Henry the Younger, is much better known to Albertans and he left us as detailed an account of his travels as any explorer. Henry the Younger arrived in the Saskatchewan area in 1808. On his first trip to Alberta he came by way of canoe as far as Fort Carlton where all the boatmen got horses to ride and went out over the plains in search of fresh meat. Every night they returned to the river to the boatmen who were slowly toiling upstream with their craft. The party reached Fort Vermilion just inside Alberta in September 12, 1808. The fort was in the long flat bottom of a meadow opposite the mouth of the Vermilion River and it was here that they met the Blackfoot Indians.

Henry tells amusingly of bringing Blackfoot Indians across the river to trade. The boats went over for them and they rushed on board until the boats sank in the mud. They refused to take turns or queue for a ride across. The boatmen finally had to go and sit on the bank until the Indians got tired of waiting and then make a quick dash away before they could fill the boats to overflowing again.

The Blackfoot, we are reminded, were horsemen not canoe men. They were scornful of boats and many of them rode their horses across the river that day. The river would be rather low at that time of year and such a ride would not be too dangerous.

On October 27, 1809, Henry arrived at Fort Augustus, the North West Company fort at Edmonton which was close beside the Hudson's Bay fort. From here Henry went out to what is now the Marwayne area to see a buffalo hunt. The wind was not the right way, however, and it was impossible to drive the animals into the pound, although he reports seeing vast numbers of them.

The Sarcee Indians, he said, caused much trouble when they came to trade after they had been drinking, as they wished to fight continuously. He was dissatisfied too with the Cree Indians who preferred feasting and lolling around to trapping and curing furs. The Indians felt little necessity for the hurry and fuss the white man was continually urging upon them. They worked only when their need for ammunition, knives or guns drove them to it.

Henry stayed the winter at Fort Vermilion on the Saskatchewan and in the springtime admired the prairie flowers and the soft new green leaves.

It was 1810 before Henry went as far as Rocky Mountain House. He had now explored the Saskatchewan from mouth to source and he describes the sight of the awe-inspiring mountains in the Columbia Icefields area thus:

"At the junction of these forks (of the Saskatchewan) we had a grand view of the mountains, more elevated and craggy than we had before seen. The upper parts of some of them are curiously formed: some resemble citadels, round towers and pinnacles. . . . On the sides of some mountains south of us where the rays of the sun never reach are vast beds of eternal snow, or, more properly, beds of ice. Their bluish colour plainly distinguishes them from the snow of this season."

The fort at Rocky Mountain House had been built so that the Blackfoot, Peigan and Blood Indians would come there instead of to the posts further down the river where they might meet the Cree.

From this fort Henry helped David Thompson make his flight north to cross the Rockies in the Athabasca Pass in order to avoid unfriendly Indians. The Peigan, and Kootenay, a tribe from across the mountains, were enemies and the Peigan did not want the traders to begin trading there and so arm their enemies. Hence Thompson's secret journey to the Big Bend country.

Henry reported that the Kootenay when he visited them, were a fine people:

"They never attempt war themselves and have the character of a brave and virtuous people, not in the least addicted to those vices so common among savages who have had long intercourse with the Europeans."

Henry went up and down the Saskatchewan River a number of times, eventually crossed the mountains and went down the Columbia to Fort Astoria at its mouth. There he was drowned when his boat overturned in 1814.

The pedlars, later the Northwesters, were the men who really discovered the far West. Competition with the Hudson's Bay Company men was the force that drove them ever onwards.

By 1811 this competition had become very intense and the Northwesters found that the Company men who followed them out could undercut their prices. The Company tightened up its organization, improved its transport system and provided the western Indians with more of the heavy weight materials they now wished to have.

The wintering partners felt the effect of the increased intensity in trade the worst. The Montreal traders were anxious to carry on but the wintering partners banded together and approached the Hudson's Bay Company for a possible amalgamation and forced their hand.

In 1821 the Northwesters were absorbed by the Hudson's Bay Company and most of the wintering partners were taken into Hudson's Bay employment as chief factors or traders.

THE ESTABLISHMENT OF FORT EDMONTON

The main river in the fur trade of Western Canada was the Saskatchewan and the quality of the furs gathered at the posts along the river was excellent. An entry in Duncan McGillivray's journal in 1795 says: "This is described to be a rich and plentiful Country, abounding with all kinds of animals, especially Beavers and Otters, which are said to be so numerous that the Women and Children kill them with sticks and hatchets."

Angus Shaw of the North West Company built Fort Augustus in 1795 some twenty miles downstream from the present city of Edmonton near what we now call Fort Saskatchewan. This was a time of keen and often bitter competition between the two great rival fur companies, the North West Company and the Hudson's Bay Company: wherever one built a trading post the other soon followed, and so it was that in 1795 Tomison of the Hudson's Bay Company started to build Fort Edmonton (named after Edmonton in England) next to Fort Augustus.

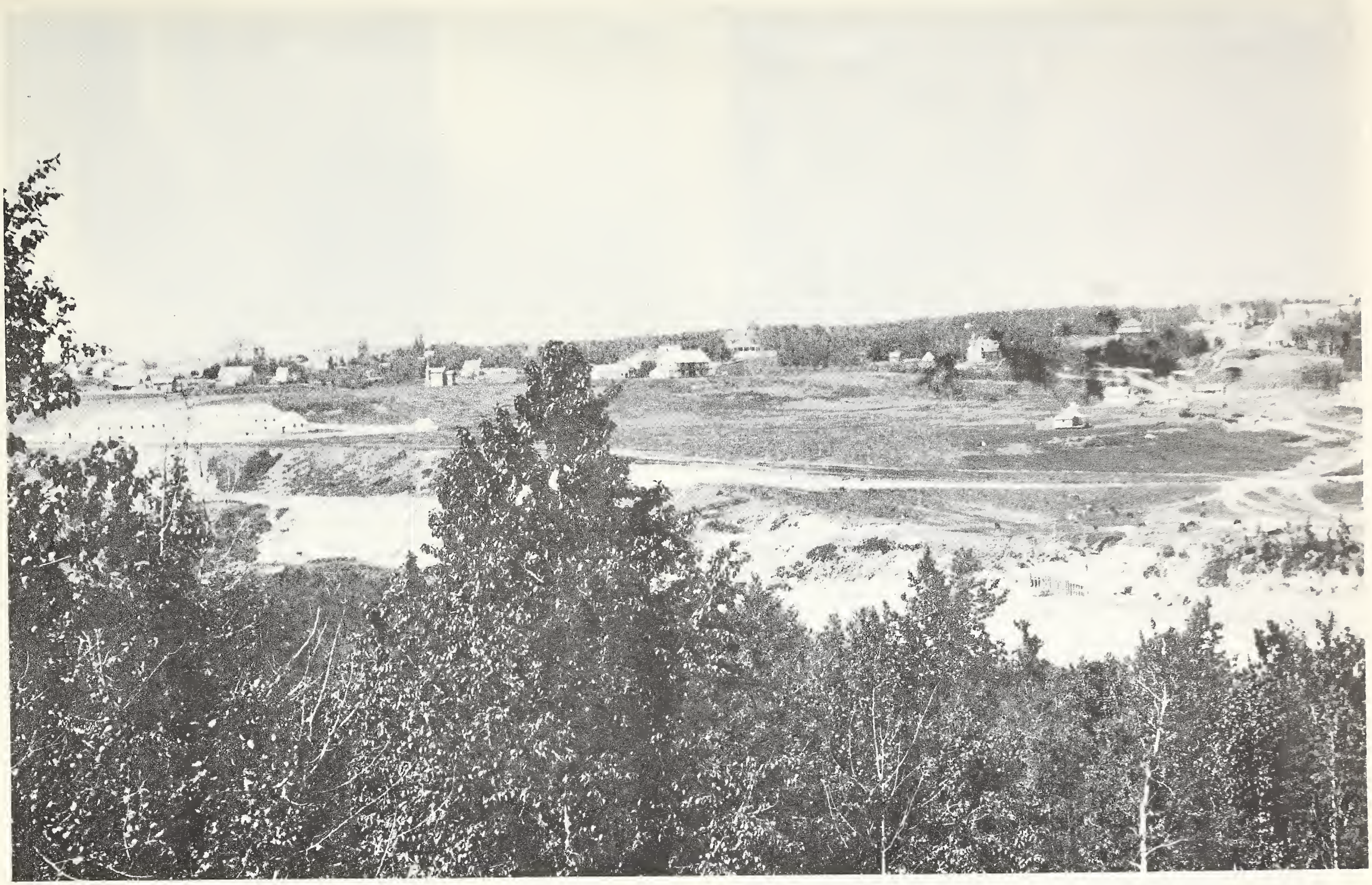
There is some confusion about the history of these forts as they were moved several times, but it is now generally accepted that in 1802 both companies built forts where the City Power Plant now stands. Both were inhabited almost continuously until 1810 when they moved downstream. At that time both companies built posts at the junction of the Saskatchewan and White Earth Creek near the site of present day Smoky Lake and here they remained for two years.

When the companies moved back upstream they found that the old forts had been burned by the Indians and had to be rebuilt. They chose their original site on the flats near the river but floods made them finally choose a place below the present Legislative Building in 1820. Here Fort Edmonton stood until it was pulled down in 1913.

The average length of life of a trading post was about eight years but some became more or less permanent because of their location and their importance in the lines of communication. Fort Edmonton was one of these and was not only a fur gathering post but also a food depot as the forest and prairie met here and the herds of buffalo provided pemmican for many a trading post. Usually one post collected furs from only one or perhaps two tribes, but Fort Edmonton gathered pelts from the Cree from the North, from their enemies the Blackfoot who were south of Red Deer and from the Mountain Stony tribe who usually camped outside the fort at a place now known as Stony Plain. Rocky Mountain House was established to obtain the furs from the Peigan Indians and Thompson did well trading with them as the furs they brought were thick and rich.

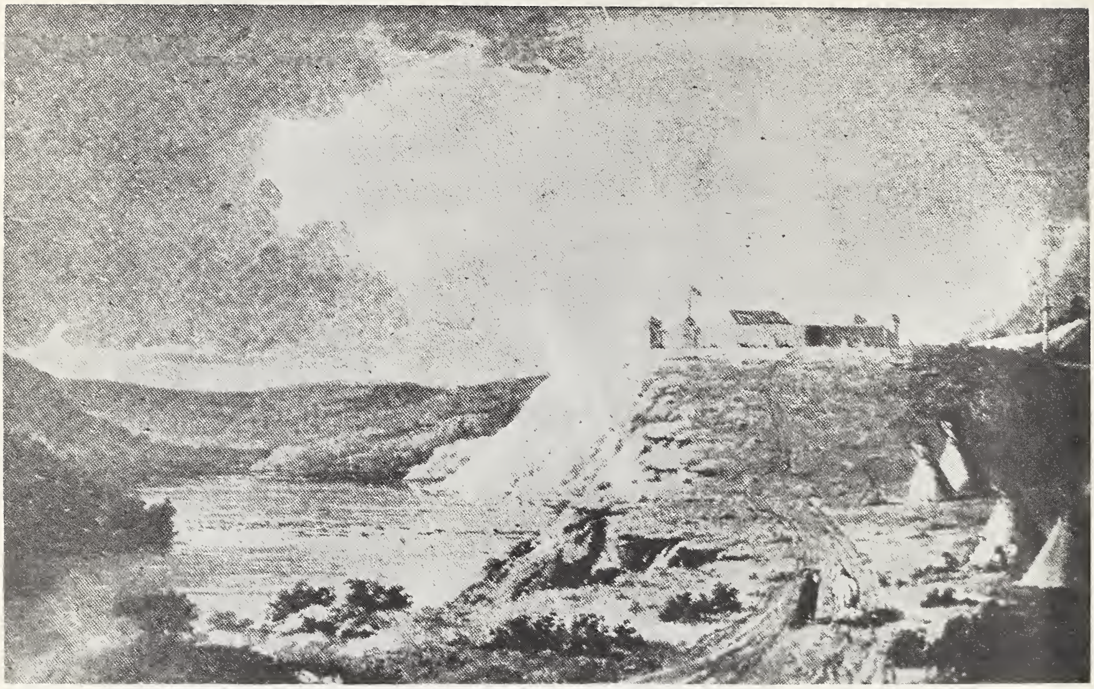
From the time that Thompson in 1810 went through the mountains, down the Columbia and established a trans-continental route to Fort Vancouver at the mouth of the Columbia, Edmonton became the point where travellers outfitted themselves for the long trip through the mountains. On the return trip across the mountains pack-horses were used between the Columbia and Athabasca Rivers and canoes took travellers as far as Fort Assiniboine whence they came across country to Fort Edmonton using pack-horses once again.

The Hudson's Bay factors at Edmonton became well known and some quite famous. In 1821 when the two great companies joined, James Sutherland became chief factor of the Saskatchewan district. He was stationed at Fort Edmonton, and John Rowand became chief trader and in 1825 chief factor. Rowand was an Irishman, a former North West Company representative, who was affable and courteous, but who had a fiery temper. He treated the

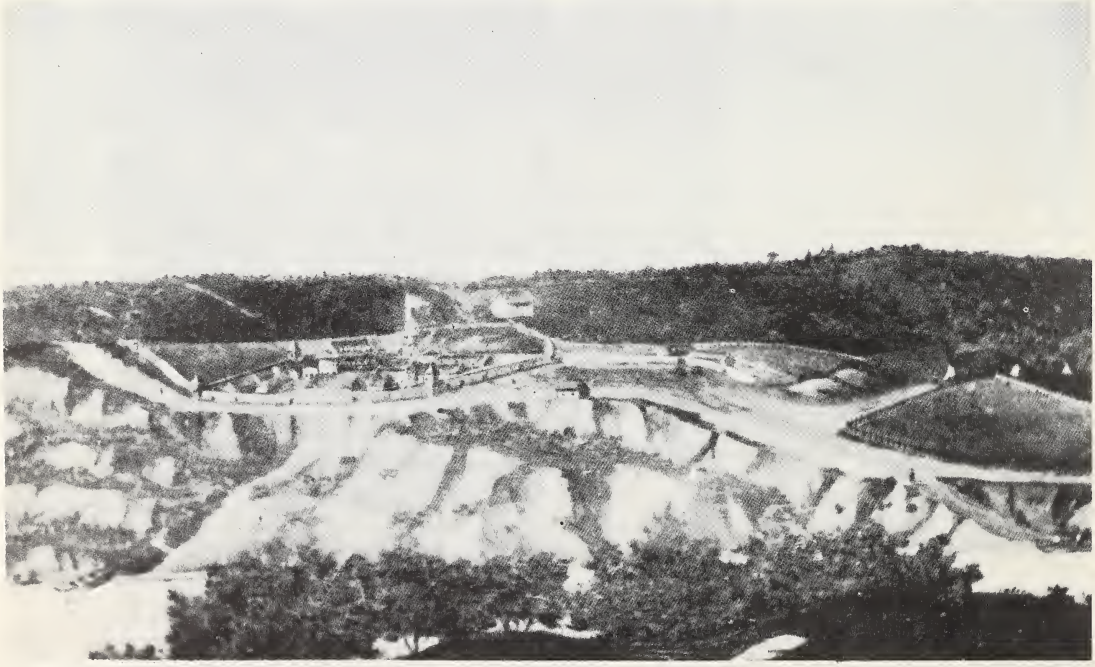


The tall tree in the foreground covers the section of the hill where the present parliament Buildings stand. Big House is to the right of the tree. The church to the left still stands on 110th Street.

Alberta Gov't Photograph



Edmonton in 1840, A Hudson's Bay Trading Post, from a painting by Paul Kane
Alberta Gov't Photograph, Ernest Brown Collection



Fort Edmonton in 1867—(Drawing)
Alberta Gov't Photograph, Ernest Brown Collection

Indians as children and never at any time was he afraid of them. He was probably the most famous trader and chief factor of the West.

At Fort Edmonton trading was done as a rule at the gate. Only the trader was permitted to negotiate directly with the Indians. Even the missionaries were permitted to have contact with the Indians only through the factor. Parties that had made repeated visits and were well-behaved were allowed in the Indian room. Life in the forts was run on a semi-military basis. A bell was rung to start work in the morning, to stop work at night and to close the gates. Alexander Ross who accompanied Sir George Simpson to Edmonton in 1875 described Fort Edmonton and the reception that was held for them as being " a nice place and a nice affair: the females were dressed well and danced well." Everywhere there was evidence of taste and decorum. Simpson was met by Blackfoot, Peigan and Sarcee chiefs who implored him to grant that their horses be swift, that their wives live long and look young and that the buffalo might always abound.

When Rowand became chief factor in 1825 he built as a residence for himself "Big House" which stood within a short distance of the east door of the present Parliament Buildings. It was the most pretentious building west of the Great Lakes. It was sixty feet wide, seventy feet deep, made of squared timber, three storeys high and had a gallery running across the front and rear of the second storey. Two brass cannons in front of the house protected it where it stood in the center of the palisaded area. There was a high stairway from the second storey down to the gentlemen's quarters and the Indian Hall. The second storey gallery opened into a wide hall and two immense rooms, one of which was known as the gentlemen's mess and one was the ballroom. Behind these were Rowand's living quarters and on the ground floor were the stewart's office, the armory, storerooms and cellars. It was a tradition that no woman ever ate at the Big House; Chef Rodideau from Montreal did the cooking often preparing such delicacies as buffalo hump and beaver tail.

Father Lacombe along with many of the other missionaries visited Big House and for a time Father Lacombe stayed at the fort, where he had a room and a chapel in a log building just inside the River Gate.

Kane, who was commissioned by the Governor of the Company, Sir George Simpson, to paint pictures of the natives of the wilds, came through from Norway House with Chief Factor Rowand in 1847. He was to go west across the mountains with men who were in charge of the pack of otter skins paid annually to the Russian government for the use of the west coast. He had to wait at Edmonton until furs from the Cree and Assiniboine Indians came in.

PAUL KANE'S STORY OF EDMONTON

When Paul Kane arrived at Edmonton in the fall of 1846 with Factor Rowand of Edmonton, he rode horseback up from Fort Carlton. Kane described the beautiful prairies which were covered with a fine haze in the later September afternoon as if grass fires were burning in the distance. He sketched the hills and the trees and shrubs which were in all their autumn glory.

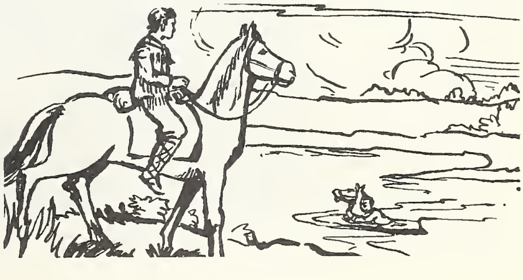
When Rowand and Kane neared Fort Edmonton they met a party from the fort who were out to shoot geese. Rowand and Kane got fresh horses from them and went on. When they reached the spot opposite the fort it was necessary to cross the river for the fort was on the north side. Kane said that Rowand's horse was a large fine animal that swam the river readily but that his own horse was not quite equal to the stream and sank down. Kane held on firmly and the horse was carried downstream a distance where it found footing in a shallow spot. Mr. Rowand enjoyed the scene from the bank.

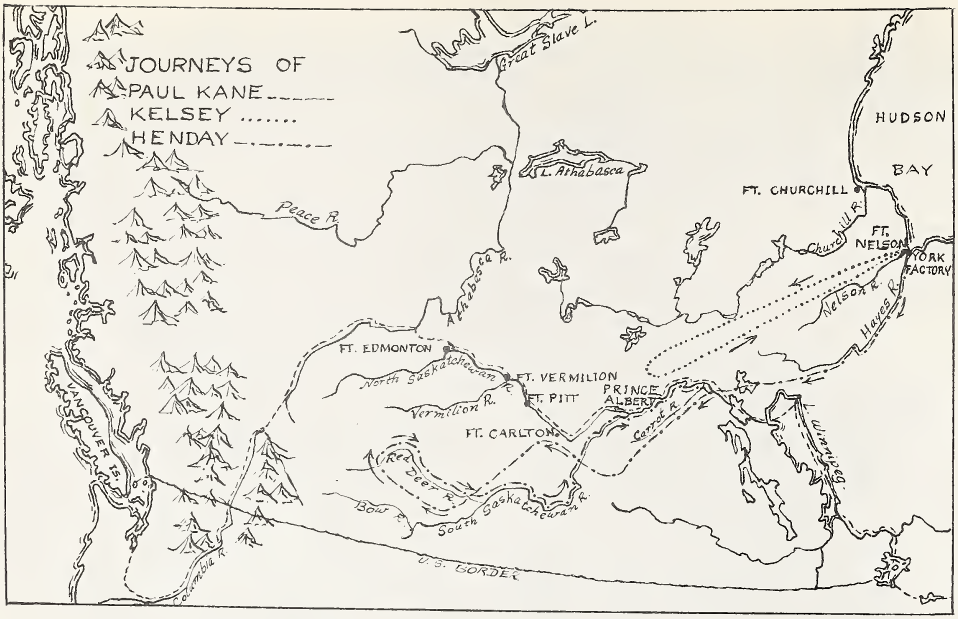
To Kane Edmonton seemed a large fort. Provisions were stored there for many of the surrounding areas with dried meat, tongue and pemmican among the chief supplies. About one hundred and thirty people lived inside the fort and about forty to fifty of the men were employed building boats for the fur trade. The timber was sawn from logs floated down from west of Edmonton. The women were squaws or half-breeds who worked making moccasins and clothing for the men, or drying meat and making pemmican. Kane delighted in sketching the Indian chiefs who visited the fort in order to trade.

In October Kane set off for the west coast, heading first for Fort Assiniboine on the Athabasca River. Fort Assiniboine was a small post where one man cared for a number of company horses. His party embarked in two boats and travelled for many days up the Athabasca. The water was very low in the river and it was difficult to navigate. On November 1 they entered Jasper's Lake, and Kane mentions having seen Miette's Rock. The guide went ahead to Jasper's House and obtained horses, and after several hours' ride Kane and the others arrived at the house where they had a feast of roasted mountain sheep. He said that it tasted much finer than any domestic mutton he had ever eaten.

Jasper's House, according to Kane, consisted of three miserable log huts. One was used for trading, one for a storehouse and for outfitting travellers about to cross the mountains, and the third one was lived in by Colin Fraser and his family. Kane thought Jasper an inhospitable spot as it no doubt would be at that time of year.

On the way back from the coast after a long trip Kane found crossing the mountains a cold ordeal. He was glad to reach Jasper's House again. The main party which had gone up from Edmonton to





Jasper's House to meet him had gone back to Edmonton as he was very late arriving. Two men, an Indian and a halfbreed remained. Mr. Colin Fraser lent Kane two dogs to use in a team and the party set off on November 15 via Jasper's Lake where there were great hummocks and crags of ice. Kane broke through the ice at one point and his feet were cut by the frozen strings of his snowshoes so that with every step he left a trail of blood. The dogs had enough trouble pulling the sled so he had to walk. The party arrived at Fort Assiniboine on November 29 after being without food for two days and having taken fifteen days to cover the three hundred and fifty miles. There they had a lovely dinner of fish which they much enjoyed. After resting for a few days they started off on December 2 and on December 5 they arrived at Fort Edmonton. His diary describes his arrival at the fort thus:

"On the evening of December 5 we arrived at Fort Edmonton where I was most kindly received by Mr. Harriett who was in charge at that time. I was given a room to myself which was a luxury I have not enjoyed for a very long time."

He went on to say that the provisions were good. There was plenty of fresh buffalo meat, venison, salted geese, white fish, rabbits and good potatoes, turnips and flour. The buffalo roamed in thousands and the men were busy gathering a supply of fresh meat for the summer ice pit.

When the river froze over in the fall the men would bring ice in big blocks to line a pit, then the quartered carcasses were piled in layers until the pit was filled. All this was covered with a thick coating of straw and a shed was built over it to protect it from rain and sunshine. The meat kept perfectly safe throughout the summer.

Kane tells of a wild band of seven to eight hundred horses which foraged for themselves during the winter around Edmonton. A horsekeeper followed the band around and kept them from going too far away, but the horses feared the wolves and did not stray far, nor did any leave the band. They were used in summer to transport pemmican and fish to the various smaller forts but were used primarily for the buffalo hunts around the fort.

Dogs and dog sleds were used to go out and bring in the buffalo that were killed during a winter hunt. Kane said that the dogs were quite as valuable as the horses because they dragged everything that was drawn over the snow. Indian women caught the dogs and harnessed them by beating them into submission.

Christmas at Fort Edmonton

(A Summary from Kane's diary)

"On Christmas Day the flag was hoisted and all appeared in their best style to honour the holiday. By now every chimney was in full blast and steam from cooking filled the air.

"About 2 o'clock we sat down to dinner. There was Mr. Harriett, the chief, and three clerks, Mr. Thebo the Roman Catholic missionary from Manitou Lake, about 30 miles off, and Mr. Rundell the Wesleyan missionary who resided at Fort Edmonton." Also there was Paul Kane who described himself as being the 'latest importation from civilized life'.

The dining hall, the largest room in the fort, 25' x 50' was well-warmed by large fires. The walls and ceilings were boarded but the boards painted in a style of barbaric gaudiness and the ceiling filled with centre pieces of fantastic gilt scrolls, altogether making a saloon which no white man would enter for the first time without a start and which the Indians looked upon with awe and wonder.

The room was intended as a reception room for the wild chiefs who visited the fort. The artist had evidently been instructed to astonish the natives and deserves highest praise for having accomplished his purpose.

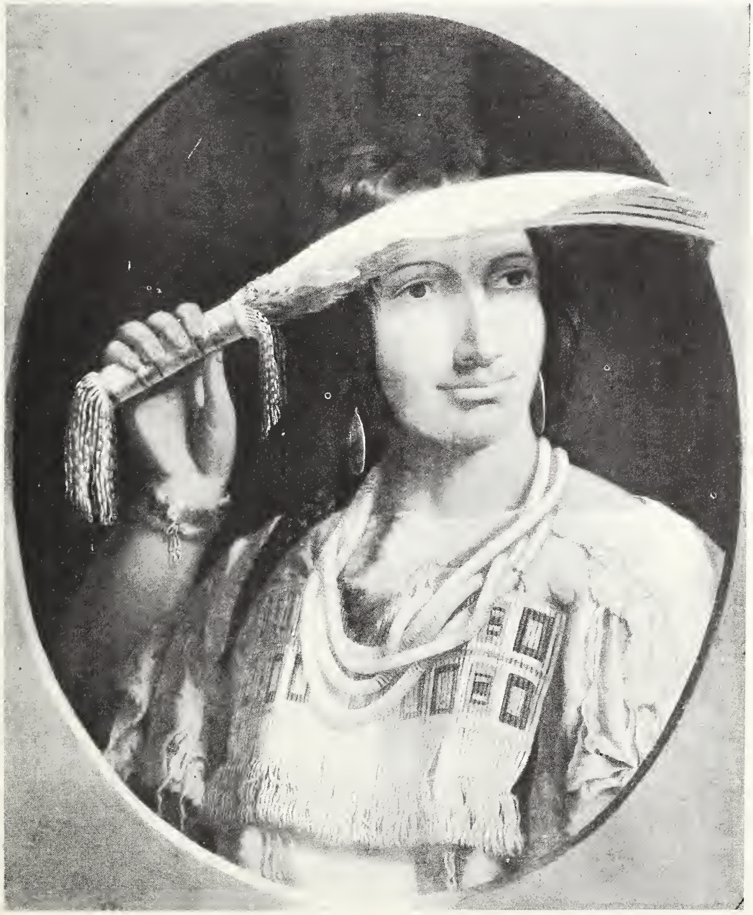
There were no table cloths for the Christmas dinner but tin plates and dishes reflected jolly faces. Outside it was 40-50° below zero.

Mr. Harriett served his party with a large dish of buffalo hump. At the foot of the table a boiled buffalo calf steamed. Kane served white fish that had been cooked in buffalo marrow. Mr. Rundell cut up beavers' tails. Another gentleman served wild game. There were piles of potatoes, turnips and bread in the centre of the table. Although no pies, puddings or cakes were in evidence the meal was a great feast and much enjoyed by everyone.

That evening the hall was prepared for the dance. Mr. Harriett had invited all the people of the fort, Indians in war paint, voyageurs with bright sashes and embroidered moccasins, halfbreeds decked out with a variety of ornaments all of whom jabbered in various languages. Only the company who were there for dinner could speak English.

The fiddler played highland reels and Kane among the others occasionally led out a young squaw and danced around her as agilely as possible. Meanwhile she with a grave face jumped up and down both feet off the ground at once, as only an Indian can dance. The children and other Indian squaws applauded from the sides of the room where they squatted on the floor. Thus Kane described the Christmas dance at Edmonton in 1849.

One of Kane's partners at the dance was a halfbreed "Cun-ne-wa-bum" which means "One That Looks at the Stars". He was much struck by her beauty and asked her to sit for her likeness. This she did with much patience holding her fan made of the tip end of a swan's wing with an ornament of porcupine quills up to her face.



Cun-ne-wa-bum — by Paul Kane

Courtesy Royal Ontario Museum

Knitting and Spinning Department, Industrial School, St. Albert
Alberta Gov't Photograph, Ernest Brown Collection

Beginnings of the Town of Edmonton

In 1871 the first land claim was made in Edmonton by the Reverend George McDougall. He staked the land where the McDougall Church now stands at the top of the hill, fenced it and built his house there. The parsonage stood where the Memorial Hall is now erected and was the first house to be built outside the confines of the fort.

Following his example, pioneers from 1871-74 staked claims along the river bank from the Hudson's Bay Reserve line eastwards. George McDougall's son, David, took the land ten chains beyond the parsonage which is the area where the Macdonald Hotel now stands. Henry Hardisty, E. McGillivray, and Donald McLeod all claimed land, as far east as Rowland's Road. To the west, William Groat and Frank Oliver claimed land. Groat staked a mile square as "there was no one between him and the Rocky Mountains". This land comprised what we now know as the Groat Estate and the Groat Ravine.

These claims had the effect of starting the tiny settlement which was later to become the City of Edmonton.

St. Albert

In 1863 the first trans-continental tourists, Dr. William Butler Cheadle and Viscount Melton made a trip across the continent. They had come to discover a direct route to the Cariboo gold country and to explore the western side of the Rocky Mountains. By this time there was a railroad to St. Paul, Minneapolis, and from there they travelled five hundred miles by canoe to Fort Garry and then on by river boat to Carleton and finally to Edmonton. Cheadle describes his trip to St. Albert in that year. "At Lake St. Albert, about nine miles north of the fort (Edmonton), a colony of free men—that is of half breeds who had left the service of the Company — have formed a small settlement which is presided over by a priest. We found a little colony of some twenty houses built on the rising ground near a small lake and river. A substantial bridge spanned the latter—it is the only structure of its kind we have seen in Hudson's Bay Territory." (Father Lacombe had made up his mind that there should be a bridge across the Sturgeon in order to facilitate the transportation of goods from Edmonton, and had urged the half breeds and Indians to assist. He threatened that anyone who did not help might not use the bridge, and so all assisted in some way by providing lumber or logs, hardware and labour. The bridge proved a great attraction to the Indians who came from miles to see and use it.)

Cheadle said ". . . Had a capital dinner with Father Lacombe of soup, fish, dried meat with fresh vegetables. After he showed us around the settlement which consisted of respectable farms, rich corn fields and large bands of cattle and horses."

Father Lacombe had brought out ploughs and other equipment from the Red River, and in 1863 even brought a flour mill. In the year 1862 the whole of the Edmonton district had suffered from a severe famine as a result of the buffalo shortage, and in order to prevent a recurrence of this Father Lacombe determined to have a flour mill and encourage the growing of crops. He had a mill at Red River dismantled and brought in by Red River carts.

The priest had built a chapel and schools for the half-breed children. Dr. Cheadle found the St. Albert colony the most progressive one he had seen in the west.

After the first governor, Sir George Simpson died, Governor Dallas was taken to St. Albert on a visit. He disliked the bridge very much and ordered Factor Christie to have it removed, as he thought of it as a symbol of the pioneer settler who was an intruder in the fur trade. However, Factor Christie ignored Governor Dallas' instructions and the bridge was never touched.

MARIE LAGIMODIERE, THE FIRST WHITE WOMAN IN THE WEST

Marie Lagimodière has a part in our story because she was the first white woman in the West, and four years of her life were spent inside Fort Edmonton.

Born in 1782 in a small Quebec village, Marie married a western scout, Jean Baptiste Lagimodière, when she was twenty-four years old. Against Jean Baptiste's recommendation and her parents' wishes Marie went west with her husband and in a very short time she was a sensation. The plains Indians, who had seen many white men, had never seen a white woman and they gathered from miles around to watch her, to touch her and to see her clothes. Jean Baptiste and his partner gave out information to the effect that Marie had the evil eye and that it was dangerous for anyone to come within ten paces of her. This was to protect her from the over-curious natives.

Marie's first child was born in Red River in 1807 on the King's birthday. Marie went westward with her husband and could often be seen out riding on buffalo hunts with her baby in a moss bag hanging from her saddle.

Just before Marie's second child was born, she was on such a hunt. There was a buffalo charge which frightened her horse and caused it to run for three hours. That very night her second boy was born, and fittingly he was called La Prairie. La Prairie was a beautiful golden-haired child with blue eyes. He was much admired by the Indians and one day an Indian chief tried to trade for La Prairie. He first offered one horse, two horses, and finally a whole band of horses plus one of his own children. Marie still refused and burst into tears while the old chief walked off, shrugging his shoulders,

From 1808 to 1812 Marie lived inside Fort Edmonton, but even here she did not always find safety. One day, when she went down to the river to draw water, a Cree woman stole off with La Prairie, and when Marie returned the old squaw was hurrying off up the hill with the boy. Marie ran after them and finally caught up with the squaw, who said she only wanted to borrow him.

The Lagimodières finally settled in Selkirk, Manitoba, where Marie's sixth child, Julie, was born. Julie became the mother of Louis Riel, leader of the North West Rebellion. Marie, first white woman of the West, lived to be ninety-six.

Boys at work, Industrial School, St. Albert

Alberta Gov't Photograph, Ernest Brown Collection

March to the Rockies of the North West Mounted Police, 1874

Courtesy Imperial Oil

THE COMING OF THE POLICE

In the early days the Blackfoot tribes in Alberta would not permit permanent trading posts to be built in their territories but traded with men from the Missouri area and with those who came to them from the Saskatchewan. Gradually, however, firewater broke down their reserve and whisky trading posts were established in Southern Alberta and Saskatchewan. A period of lawlessness followed and the whisky drinking bouts culminated in a massacre in the Cypress Hills country on the boundary between Saskatchewan and Alberta, which made it imperative that law and order be imposed.

In the late sixties a party of whisky traders from Fort Benton came up to Canada to build a trading post at the junction of the St. Mary's and Belly Rivers. Here a strong fort was established with buildings around three sides of a square, the fourth side being enclosed by a stockade. Trading could be done through the loopholes if necessary and if the center enclosure was filled with fighting drunken Indians the buildings could be completely closed up until things quietened down. Traders going north said that they were going up to "whoop-up" the trade with the Indians. Soon the trading post became known in Fort Benton as Whoop-up. A number of whisky forts such as Slide Out, Stand Off, etc., were established at this time. Even more disreputable than the whisky traders were the "wolvers" who poisoned buffalo meat and left it for wolves who ate the meat and died. The wolvers were much against the repeater rifles with which the American traders supplied the Indians, as with these new rifles the Indians were able to destroy the buffalo in greater quantities. With the killing of so many buffalo the number of wolves naturally decreased and there were fewer hides available for sale.

To end the trading of repeater rifles these half-breed wolvers formed themselves into what was styled "The Spitzee Cavalry". They started off to visit such places as Fort Whoop-Up to enforce their regulations. At Whoop-Up they surprised Hamilton, the trader there, who listened to their warnings which they promised to back up with arms and while he listened he heated a poker red hot. Then he casually walked over to a keg of gunpowder and holding the poker overhead he threatened to plunge it into the gunpowder and blow them all up unless they cleared out. The wolvers made a rush for the gate and Hamilton shouted after them that they would be dead men if they returned. It was the end of the Spitzee Cavalry.

Stories of life in the whisky forts abound. Fred Kanouse was said to have begun once to tell the story of an adventure and he illustrated his tale by firing his gun. Unfortunately it hit a keg of gunpowder which blew up one end of the fort and burned the whole place down.

The following letter is said to be an authentic one sent to Fort Benton. It illustrates how cheaply life was held.

Whoop Up.

Dear Friend: My partner, Will Geary, got to putting on airs and I shot him dead. The potatoes is looking well.

Yours truly,
Skookum Jim.

The attitude of the whisky traders, the wolvers and the American frontiersmen toward the Indians were all much the same.

At Fort Benton white men would bully the Indians but once the Indians got out of hand the cry was "Bring out the troop, call in the settlers—down with the Indians! Wipe them out root and branch." Captain W. F. Butler who in 1870 was sent out to report on conditions in the Saskatchewan area described in his book, "The Great Lone Land" how white men attacked a Peigan camp and wiped out every man, woman and child, many of whom were ill with smallpox. As a result the Indians began to hate all newcomers for they were unable to distinguish between good and bad white men. White men all seemed to hate the Indians who consequently returned the hatred. The Long Knives (the Americans) and the American Cavalry who wore blue uniforms were particularly feared and distrusted.

Father Lacombe was said to have had a discussion with a Peigan chief regarding the white men and had pointed out the uselessness of attempting to fight the Americans. In Butler's book the reply is recorded thus:

"It is well, and listen now to what I say to you; but first, you, my brethren, you my sons, who sit around me, if there should be ought in my words from which you differ, if I say one word that you would not say yourselves, stop me, and say to this black-robe I speak with a forked tongue—You have spoken true, your words come straight; the Longknives are too many and too strong for us; their guns shoot farther than ours, their big guns shoot twice, their numbers are as the buffalo were in the days of our fathers. But what of all that? Do you want us to starve on the land which is ours? to lie down as slaves to the white man, to die away one by one in misery and hunger? It is true that the Longknives must kill us, but I say still, to my children and to my tribe, "Fight on! fight on! go on fighting till the very last man; and let that man go on fighting too, for it is better to die thus, as a brave man should die, than to live a little time and then die like a coward. So now my brethren, I tell you, as I have told you before, keep fighting still. When you see these men coming along the river digging holes in the ground, and looking for the little bright sand, kill them, for they mean to kill you.

" . . . what does the white man want in our land? You tell us he is rich and strong and has plenty of food to eat; for what then does he come to our land? We have only the buffalo and he takes that from us. See the buffalo, how they dwell with us; they care

not for the closeness of our lodges, the smoke of our camp fires does not frighten them, the shouts of our young men will not drive them away; but behold how they flee from the sight, sound and smell of the white men! Why does he take the land from us? Who sent him here? He puts up sticks and he calls the land his land, the river his river, the trees his trees. Who gave him the ground and the water and the trees? was it the Great Spirit? No! for the Great Spirit gave to us the beasts and the fish, and the white man comes to take the waters and the ground where those fishes and those beasts live—why does he not take the sky as well as the ground? We who have dwelt on these prairies ever since the stars fell do not put sticks over the land and say "Between these sticks this land is mine; you shall not come here or go there!"

It is doubtful whether Father Lacombe would have words left to continue the discussion. It would seem hopeless to try to convince the Indian.

The whisky traders were pushing up into the central part of the province by the time Colonel Robertson-Rees, who came two years after Butler, travelled through the Northwest on behalf of the Dominion Government to study conditions. He suggested that a large force of mounted riflemen be sent west.

By 1870 The Hudson's Bay Company and the missionaries had begun to send in a constant stream of complaints to Ottawa regarding the desperados, outlaws, murderers and thieves who were conducting the whisky trade and reported that the traders took the attitude that killing a few Indians who became troublesome was frequently necessary.

The Cypress Hills Massacre was an incident that caught the attention of even the Easterners. A group of Fort Benton traders was returning home with a load of furs when some Cree Indians ran off with their horses: the traders were forced to go back to Fort Benton on foot where they secured horses to go Indian hunting. They tracked the Cree Indians through the Cypress Hills to a trading post there. It was said by the Americans that Assiniboines who were camped nearby laughed when they heard of the white men's misfortune, and it is uncertain what happened next. Perhaps the white men became drunk and decided to wipe out the Assiniboines. In any case, using a nearby bank for shelter, they shot 40 to 50 of this tribe. The affair indicated an immediate need for supervision in the West. For some time it had been necessary to watch the international boundary. It had become the "Medicine Line" to the Indians who found they could make raids across the line and the police from the other side dare not

Indians at Fort Whoop-up

Alberta Gov't Photograph, Ernest Brown Collection

follow them. The maintenance of peace was necessary if settlers were to come to the West and was needed too in order that the railway might be built.

Thus in 1873 a small force of three hundred mounted men was organized by the Canadian Government. The requirements were as follows:

"No person was to be appointed to the police force unless of sound constitution, able to ride, active and able bodied, of good character and between the ages of 18 and 40 years; nor unless able to read and write either the English or French language."

Colonel French, the leader of the force was a man of excellent qualities. In the great march of 1874 across the prairies he was daring and resourceful. He established a standard of performance for his men which has affected the force even to this day.

The immediate purposes of the police were to remove the whisky forts from the prairies, to prevent the "wild west" situation which had developed across the line from becoming established in Canada, and to encourage the Indians by tact but not by force to accept the inevitable push of the white man into the western territory and to give up some of the Indian tribal rights and customs which would make life difficult for the white settlers.

A red tunic was chosen as the dress of the police because the Indians had been favorably impressed by the friendliness of the British troops stationed at Red River in times gone by who wore scarlet uniforms.

One of the leaders of the force was Colonel MacLeod who made his headquarters in Alberta. He became one of the three magistrates in the North West Territories. The Indians admired MacLeod for his honesty, fairness and justice to all, and called him Stamixotokan meaning Bull's Head from the emblem on the cap of his regular uniform. MacLeod was a born leader of men and he was determined that the Police should speak the truth, do what they had promised to do and convince the 'savages' that they were men of honor and the Indians' friends.

On July 8, 1874, the force left Dufferin in Manitoba and by September 6 they were at the spot where Medicine Hat now stands. The trip across the prairies was difficult and arduous. So bad was it, indeed, that the horses became weak and many of them died. It was suggested by Inspector Jarvis, in charge of A Company, that he set off with the sick horses and cattle toward Edmonton. They set off on July 29 and reached the fort on October 27 to November 1 (many stragglers kept coming in for days). They came from Fort Carlton in eighty-eight days, a distance of nine hundred miles.

The men stayed at Fort Edmonton throughout the winter where Chief Factor Hardisty was in charge and in the spring chose the location for the barracks. Because of the low river banks in the Fort Saskatchewan area, this place was chosen rather than the Edmonton area.

The place was known first as the Sturgeon River Post but later was known as Fort Saskatchewan.

Colonel MacLeod and Colonel French on the south trail went south from Medicine Hat to Fort Benton for supplies and found the I.G. Baker Company in Fort Benton ready to supply them with everything — even to an interpreter.

The interpreter was Jerry Potts, a half-breed Peigan Indian, who was admired greatly for his bravery by the Blackfoot tribe. His value as a Blackfoot interpreter was very great, as he could reduce an Indian oration to a few brief sentences and he could interpret to the Indian the exact shade of meaning that the police had intended in their replies. (He was the interpreter when the Blackfoot Treaty was signed in 1877.)

When MacLeod and Potts arrived back in Canada the new guide directed them along the trail which the whisky traders took into Canada to the whisky forts. At Fort Whoop-Up the traders were away, so the police went on to the Oldman River and built a fort where the Old North Trail crossed the Oldman. Here was Fort Macleod, the first police post in the British Northwest.

Macleod met the Blackfoot Indians and explained what he was going to do. Very soon the whisky traffic was stopped for heavy fines and confiscation of trade goods discouraged the traders.

In 1875 Fort Walsh was established in the Cypress Hills area to provide a center for the investigation of the Cypress Hills Massacre which had occurred two years previously, and when Sitting Bull and his warriors came to Canada the police controlled them from this point.

The Americans who murdered the Indians at Cypress Hills were sought out, a detachment of police going to Helena; Montana, to pick up those who were still alive. They were brought to trial before a United States commissioner who let them go because of lack of sufficient evidence. The attitude of the people of Montana was that there was no use hanging good white citizens for shooting a few Indians. They couldn't understand the attitude of the police and the newspapers in Helena and Fort Benton expressed resentment against them. However, the word was now abroad that the police would not stand for law breaking north of the border and that the Indian was to be treated as the equal of the white man. This establishing of law and order had not come a moment too soon.

In the northern and western parts of the United States, areas had been set aside for the Indians and treaties signed. Then when gold was found within Indian areas the treaties were broken. The Indians learned that the white man's word was useless and large tribes, inflamed with hatred, tried to drive the whites away. The culmination of the trouble was the Custer Massacre on the Little Big Horn, a tributary of the Missouri, in 1879.

A drawing of Mounties on a Buffalo Hunt
Alberta Gov't Photograph, Ernest Brown Collection

The Story of Sitting Bull

Leader of the Montana Sioux Indians, Sitting Bull led raids against white settlements for many years until he was driven back into the Big Horn country of Montana. He continued his raids from there and General Custer with an American force of about six hundred men was sent to capture him.

Custer approached Sitting Bull's camp at the Big Horn, and thinking the village contained only a few hundred warriors, he split his force to surround the area. Unfortunately there were six thousand Indian warriors under the leadership of Sitting Bull and Crazy Horse. The Indians completely wiped out Custer's whole force. When the relief army arrived they found the bodies of Custer and his men lying on the ground. The Indians, however, had retreated and there was not a soul left to tell the story.

Sitting Bull knew that the United States forces would be after him, so he went north across the boundary into Canada in May 1877. Here he provided a real problem for the police for with his six thousand warriors he entered Blackfoot territory. The police did not want the Sioux to fight the Blackfoot nor did they want the two tribes to get too friendly and attempt to wipe out the white man. Colonel Walsh entered the camp of Sitting Bull and told him that he could remain in Canada and that he would not be harmed as long as he did not interfere with anyone, but that he must obey the laws.

Chief Crowfoot of the Blackfoot tribe kept his braves in line and prevented any fighting with the Sioux and as well stopped them from too much fraternizing. The Sioux were finally taken into the Wood Mountain area.

Shortly afterwards Sitting Bull wished to go back to the United States to help the Nez Perce Indians who were besieged by General Miles in the Bear Paw Mountains. Walsh warned Sitting Bull that he could not make raids across the line and expect to have protection from the police when he returned. Sitting Bull accepted this, for the police assured him that the Nez Perce could also come to Canada for protection if they wished.

Later the United States government sent a commission to ask Sitting Bull to return there, but the commission was headed by a man much disliked by Sitting Bull, who refused to go back across the line even though the police urged him to go. However, there was not sufficient hunting in this area for the Indians and the Canadian Government refused to provide a reservation for them. Gradually they all drifted back across the line, and finally Sitting Bull himself went back in 1881. In 1890 he was killed when evading arrest: he had been suspected of urging the Indians to renew their war on the white man.

Sitting Bull was one of the most colorful American visitors Canada has ever had.

Northwest Rebellion

In Canada, trouble with the Indians in 1885 began over different matters. The coming of the railway, the scarcity of the buffalo which had been slaughtered not for food but for hides and the land survey which frightened the half-breeds into thinking that they would lose their land all contributed to the Indians' fear and hatred of the white man.

The half-breeds sent for Louis Riel, who had fled to the United States following the Red River Rebellion and he set up his headquarters at Batoche and began to organize a new rebellion.

The Alberta Indians for the most part remained steady. Members of the Blackfoot Confederacy who were incensed that the railway was being built across their land without their permission were held in control by Chief Crowfoot who saw the increase of white invaders as inevitable: he helped his people most by remaining on the side of the police. Father Lacombe and MacDougall, the Methodist missionary, helped to keep the Indians friendly towards the white men. Had the large and warlike Blackfoot tribe joined the Rebellion, it would have been much more difficult to subdue.

The Plains Cree Indians together with some of the Wood Cree caused trouble for the police in the north. By this time treaty money was being paid to many Indians but in Saskatchewan Big Bear at first would not sign any treaty and therefore did not get any pay. Finally his Indians were starved into signing the treaty. Then Big Bear refused to choose a reserve. By this time the half-breeds who thought they were going to be done out of their land were organized under Riel and had sent out scouts to Big Bear's tribe to form an amalgamation.

The rebels fought with the police at Duck Lake and after killing a number forced them to retreat. Spurred on by their success it now seemed possible to the Indians to clear out the white men from the west.

The war drums beat in Big Bear's camp at Frog Lake and on the 2nd April, 1885 the Indians seized all the white people's weapons before they were awake. Shortly after this they shot the Indian agent and eight other men, and headed for Saskatchewan to join forces with other rebels. The situation was now very dangerous. If the Blackfoot Confederacy had joined, conditions would have been desperate but it remained loyal. Even so it took until the first of June to put down the rebellion.

Louis Riel and some of the Indians, among them Wandering Spirit, the war leader in Big Bear's band, were hanged. Big Bear, Poundmaker and others were imprisoned, and rather belatedly the government proceeded to care for the natives whose land was being taken from them.

Fort MacLeod, 1884

Courtesy RCMP, Ottawa

INDIAN TREATIES

The Royal Proclamation of 1763 provided that no Indian could be dispossessed of his lands without his consent and the consent of the Crown. Treaties were made therefore with numerous Indian tribes during the settlement of the country, with the Indians surrendering their interest in the land, and the Crown undertaking to set aside reserves and to provide other benefits.

Treaties Numbers 6, 7 and 8 covered much of the territory which is now Alberta. Some of the conditions of Treaty Number 7 are set out below as an example. The other treaties differed only in small details.

Treaty Number 7 was signed on September 22, 1877, between Her Majesty the Queen and the Blackfoot, Blood, Peigan, Sarcee and Stony Indians, at Blackfoot Crossing sixty miles down river from the present city of Calgary. There had been a great pow-wow for several days previous to the coming of the police with a large tent and a lot of smaller tents filling the meadow on the south bank. Early in the morning on the day of the signing there were piercing war cries from an assembly of three thousand painted warriors mounted on horseback and pistol shots rang from as many guns. There was a tremendous stampede as all swept over the hill and down in front of the police tents drawing up only when the ponies were touching the tent flaps.

Crowfoot dismounted, walked in dignified silence to the front, spread a robe on the ground and sat down. The peace pipe was filled and made the rounds. The conference began. The police told of the Queen's desire that the Indians should raise cattle to take the place of the buffalo. Crowfoot signified his approval. All the lesser chiefs spoke and thanked the police for their protection, and agreed. A thirteen gun salute announced the conclusion of the treaty. Incidentally the great Blackfoot Chief, Crowfoot, was the last to sign, saying "I shall be the last to break."

Government Obligations:

Reserve 1 square mile for each family of five.

Treaty presents of $12.00 for Indians, $25.00 for chiefs and $15.00 for headmen.

Flags and medals.

A Winchester rifle for each Head Chief, Minor Chief and Stony Chief "as soon as convenient."

Six Indian Chiefs, by Paul Kane

Courtesy Royal Ontario Museum

A minimum of two cows for each family, or if required implements and seed for cultivating the soil in lieu of cattle. These were given for "the encouragement of the practice of agriculture among the Indians".

Agreement to pay salary of teachers, etc.

Annuities:

Chiefs $25.00, headmen $15.00, Indians $5.00. $2,000 for the purchase of ammunition annually as long as it is necessary.

Triennial suit of clothing for chiefs and councillors.

For these things the Indians agreed to "cede, release, surrender, and yield up to the Government of Canada for Her Majesty the Queen and her successors for ever, all their rights, titles and privileges whatsoever to the lands. . ."

Since January 1950 Indian Affairs have been the responsibility of a branch of the Department of Citizenship and Immigration. About half the Indian population in Canada is under formal treaties. In Alberta, according to the latest available figures, there are 17,055 Indians living on reserves. At the time of the first settlement in North America about four centuries ago the Indian population of what is now Canada was about 200,000. After the coming of the white man there was a sharp decline in the number of Indians, who had no immunity to the newcomers' diseases and consequently died in large numbers. During the last fifty years, however, there has been a steady increase and now the number of Indians in Canada is over 151,000.

The objects and policies of Indian administration in Canada were reviewed by the Minister of Citizenship and Immigration in the House of Commons on June 21, 1950, as follows:

"The underlying principles of Indian legislation through the years have been protection and advancement of the Indian population. In the earlier period the main emphasis was on protection. But as the Indians became more self-reliant, and capable of successfully adapting themselves to modern conditions, more emphasis is being laid on greater participation and responsibility by Indians in the conduct of their own affairs. Indeed, it may be said that ever since Confederation the underlying purpose of Indian administration has been to prepare the Indians for full citizenship with the same rights and responsibilities as those enjoyed and accepted by other members of the community. . . . The ultimate goal of our Indian policy is the integration of the Indians into the general life and economy of our country."

The primary function of the Indian Affairs Branch is to administer the affairs of the Indians of Canada in a manner that will enable them to become increasingly self supporting and independent members of the community. Among the important functions are the management of Indian reserves, education, welfare projects, relief, family allowances, rehabilitation of Indian veterans on reserves, descent of property, Indian treaty obligations, enfranchisement of Indians, etc. Medical attention is provided as required by the Department of National Health and Welfare.

Legal Status of Indians

Indians are subject to federal, provincial and municipal laws, in the same manner as other Canadian citizens. Their real and personal property held on a reserve is exempt from tax, and except on suit by another Indian, is also exempt from seizure.

Indians not resident on reserves may vote at federal elections, and Indian veterans and their wives whether living on or off reserves may also vote. Indians ordinarily resident on reserves may vote provided they execute a waiver of exemption from taxation on personal property held on the reserve.

The manufacture and consumption of liquor on reserves is prohibited.

Approximately half the Indian population of Canada is still dependent upon the traditional pursuits of trapping, hunting and fishing for a livelihood. Of the remainder the greatest number are engaged in agriculture, which is particularly important in the Prairie Provinces.

This is how the Indians live today, they who were once masters of the land, and it would seem possible that in the years to come they may become integrated and lost in the great variety of people who now inhabit Alberta.

Chief Crowfoot

Courtesy Dominion Gov't Archives

THE HISTORY OF THE ALBERTA RANCHLANDS

It was in the year 1877 when many of the prairie Indians signed treaties and ceded their land to the Canadian Government on the understanding that if hard times should come their people would have help from the white man. Colonel MacLeod, Lieutenant-Governor Laird, some missionaries and many mounted police were at the Blackfoot Crossing on September 17, 1877, for the signing of the Blackfoot Treaty. Ranching began from the time that the Indians gave up claim to all of the land and entered the reserves.

Those tribes that were not interested in general farming were to be given cattle. The buffalo were fast disappearing from the plains and the government therefore passed an ordinance saying that the buffalo were not to be killed by driving them over cliffs nor in any wanton way which would result in waste. However, nothing could now halt the decline of the rapidly dwindling herds.

The first of the ranchers began to establish themselves in the area south of Calgary, and brought in cattle, sheep and horses from the United States. The traders such as Fred Kanouse, a whisky trader turned rancher, began in a small way. Around Pincher Creek and near MacLeod there were a dozen farmers with some cattle, but the Indians who had been promised herds of cattle did not get them until the spring after the signing of the treaty and the ranches suffered many losses throughout that winter. In many cases to the Indians who were reduced to trapping gophers and even coyotes to supplement their supply of food and to going about in great bands from fort to fort begging for something to eat, the cattle on the range naturally presented an ever-tempting invitation.

The newly appointed Indian commissioner, Dewdney, was aware of the danger from the thousands of hungry Indians and little was done to punish those who stole from the ranchers. In fact, they were told that they were not to shoot Indians whom they found killing cattle. The cattlemen felt that the government should have done a better job of providing food for the Indians; the government agents, however, felt that the land had not been opened up as yet for development nor were the Indians properly settled on their reservations, so that the government could not be held responsible for the actions of the natives. It would require time to teach the Indians decorum and in the meantime the ranchers would have to put up with losses. As a result, the ranchers, more embittered by the attitude of the government than by the Indians, moved out of the country. Kanouse, for instance, went to the Waterton Lakes area and others to Montana.

The first round-up ever held in Southern Alberta took place in the MacLeod district in 1879. It was a small affair consisting of sixteen men and one wagon, and some of the men rode mares whose colts tagged along beside. They rounded up five to six hundred head and found that they had fewer cattle than they had the year before. Some ranchers were wiped out completely.

In 1880 the government started a lease system of huge tracts of land for ranching and settlement for they felt the time had now come to open up the country. The leases were for a twenty-one year period and were not liable to cancellation. Some famous ranches were established at this time, amongst them the Waldrond, Cochrane and Bar-U ranches.

By 1881 the ranches were becoming well-stocked with good animals brought in by the C.P.R. from Eastern Canada. The railway brought them as far as Winnipeg and from there they were driven overland to the ranch country.

The early days of ranching, however, were fraught with difficulties. Stock for the ranches, which was often driven in from Montana, arrived worn out and little able to search for food. In 1881 the Cochrane ranch drove a large herd from the south at the rate of eighteen miles per day. Many died before spring and there were great heaps of bodies in the coulees. This was only the beginning of a long string of unfortunate incidents which occurred to the Cochrane ranch outfit. In the spring, the Cochrane ranch manager was given orders to round up all the cattle on the range and brand them. The small ranchers agreed to help in the round up but when they realized that all the cattle, even their own, might be branded they returned home and found as many unmarked cattle as they could regardless of ownership and branded them with their own brand. Thus the big ranch lost many animals to the small farmers.

By this time there were thousands of head of cattle on the southern range land, but the winter of 1882-83 was a very severe one with a snow storm on October 15 and no complete thaw until the end of March. Thousands of cattle died, and the rest of the herds were scattered far and wide. About this time, a Negro, John Ware, who was a famous cowboy, came to the large, new Bar-U ranch to work. John proved his worth immediately by thwarting some rustlers who were trying to cut out some animals to which they claimed ownership. The herd

was on the move from Montana to Alberta, where the rustlers halted the herd and were prepared to shoot in order to get the cattle they wanted. But John took a whip to them and they fell before they could draw their guns. John Ware became famous in the southland among the Indians as well as the whites. The Indians called him "the black white man".

The negro cowboy later saved enough money to start ranching on his own. He bought land at Sheep Creek and was regarded as one of the greatest riders of the Canadian range.

At the close of 1883, there were 25,000 head of stock between the Bow River and the boundary.

The Riel Rebellion in 1885 caused little disturbance in the ranch land but the demand for beef to supply the forces in the north was very great and prices rose. Although wise old Crowfoot would not sanction his warriors rising, there were some manifestations of unrest at this time and some of the younger members of the tribes tended to be bolder about horse thieving and in bullying the whites whenever it was possible.

By this time members of the Stony tribe west of Calgary were becoming excellent farmers. In fact, they did so well that the government decided to discontinue paying treaty, and as a result hungry hordes travelled about all one winter begging food from the ranchers.

Another problem to be faced by the ranchers closest to the foothills were the wolves that in earlier years had no doubt lived on the buffalo herds and now swept down from the hills to attack the ranch cattle. When the government refused to pay a bounty on the wolves the ranchers banded together and offered a bounty for them. This provided sport and funds for the Indians.

The greatest round-up in the history of Alberta took place on May 25, 1885, at MacLeod, when all the High River and Pincher Creek ranches took part. One hundred men, fifteen mess wagons and five hundred saddle horses made up the work crew. It was a tremendous effort and sixty thousand head were rounded up and branded. The decision was made that general round-ups must be dispensed with. The cattle industry had grown to such great proportions that rounding-up in individual districts seemed to be a better arrangement with each ranch sending a representative to each district round-up.

The ranges were still wide open at this time with the exception of a few homesteaders' fences. The Cochrane ranch put up a fence twenty-five miles long in 1885 intending to enclose their whole ranch eventually. The fence ran from the Oldman River to the Porcupine Hills. Marked deterioration in the steers on the range had caused this move for many of the ranchers had scrubby stock and low-grade bulls, but the larger ranches such as Cochrane's had imported purebred bulls and they wanted to keep up the superior quality of their animals. This could be done only by keeping the herds separate. The cowboys who hated fences cut the offensive barrier whenever they got a chance and soon the fence was useless. Eventually the posts were burned for firewood.

As a result of the very severe winters around Calgary, the Cochrane people decided to take their stock to the Kootenay Range around Waterton Lake. The winter of 1886-87 found them with a bad situation there too, as six-foot drifts of snow had buried all the feed. In contrast, around Calgary the settlers were having an open winter. For the sum of one thousand dollars Frank Strong of MacLeod, a rancher and the manager of the I. G. Baker stock business, offered to go and save the herd. The Cochrane manager and owners accepted. Strong took a large band of five hundred cayuses and drove them through the hills where they plunged through the drifts. It took them two whole days to cut through to Waterton, then he turned them homeward to the Peigan reserve and they went on the gallop arriving in eight hours. Right behind them came the Cochrane cattle to the open range and food, and within twelve hours the hungry cows and steers were filling their empty stomachs.

The first big ranch in the Medicine Hat area began in 1887. From Ontario the ranchers brought in a hundred and twenty head of cattle and with them a registered shorthorn bull called Royal Gem. For the ranch, known as the Medicine Hat Ranching Company, there was also brought in a Clydesdale stallion. In a very short time the cattle were as dense here as on the western ranches.

By this time there was an enormous amount of land under lease. Over a hundred large ranches were operating. There were at least sixteen ranches with more than a hundred thousand acres leased. Even the smaller ones contained ten thousand acres and upwards.

The years 1885 and 1886 were momentous ones for the southern ranchers. In the fall the Oxley Ranch branded two thousand calves and the first Agricultural Fair ever held in Alberta took place on October 15 and 16 of 1886 at MacLeod.

It is amusing to note that the "old timers" of that day prophesied that the winter of '86 would be an open one and the MacLeod Gazette published their assurances with a footnote of advice to the effect that a stack of hay would not come amiss, probably.

Fred Kanouse had turned the first cattle loose on the range ten years previously. During those ten years there had been the odd severe winter but no one dreamed that a winter could be as hard as 1886 proved to be. Heavy snowfalls which drifted and crusted prevented any grazing. There was little hay and ranchers offered forty dollars a ton (a phenomenal price for those days) but there was none to be had. The herds of Pat Burns and J. H. Wallace, who bought cattle to fatten, were reduced by two-thirds this winter. The bodies of steers were found in coulees and in drifts all over the country. The rabbits died, the lynx left and the herds of antelope starved. In Montana, Wyoming and Dakota the winter was even worse, and many ranchers were forced out of business because whole herds were lost. The Indians, however, lived well on the cattle they found frozen everywhere. Wolves and coyotes also found rich pickings.

As near as could be estimated twenty-five per cent of the cattle were lost around Calgary, fifty to sixty per cent in the Pincher Creek area and fifty per cent in the Medicine Hat area. In spite of all this, few ranchers were completely wiped out and nearly all were prepared to buy new stock. They benefited from the lesson indeed, and from that time on huge quantities of hay were stored against a possible repetition. The cowboys rather resented the work of putting up hay, which was too much like dirt farming for their taste.

Pat Burns, who became one of the cattle kings, started a meat packing business in Calgary in 1890. It became one of the largest companies of its kind in the world with branches in such far away places as Liverpool and Yokohama. Pat Burns was made a member of the Canadian senate in 1931 in recognition of his contributions to western ranch life.

In the 1880's the Mounted Police spent a great deal of their time herding American stock back across the border. The untouched grasses of the border lands were a temptation to the cattle and to their owners, many of whom drove the cattle up to the line and then turned them loose. The firmness of the police who occasionally took the stock away and sold them made the southern ranchers more careful and some even moved across the border to take up land in Alberta. About this time a few Indians were taken on as Mounted Police scouts; they proved to be excellent scouts and were much more stern with horse or cattle thieves among their people than were the white men.

The cattle on the range showed improved quality through the years to 1890. Shorthorns and Herefords were the main breeds but it was found that the Poll Angus was a very good survivor of the worst winters. About this time too, some Scottish Highland cattle were introduced and gained much favor. The meat was fine grained, the hide commanded a high price on the market and the animals themselves were good rustlers. They took a year longer than the other breeds to mature but that seemed to be outweighed by their virtues.

By this time ranchers were finding it worthwhile to ship cattle to Britain. Alberta cattle could compete favorably with Australian and Argentinian cattle, but the ranchers found that the time of year made a difference. The Bar-U, the ranch seemingly always in clover, was well satisfied with returns but the Cochrane ranch with its usual bad luck shipped when the market was flooded with stock from elsewhere and their cattle were so wild that they had to be killed immediately on arrival. Consequently they made a very small profit.

Many of the cowboys of the south country became famous characters and make up a very colorful part of our tradition exemplified in the stampedes which take place each year. Some of the early cowboys came from south of the border and brought with them the customs of the ranches of Texas; some of them came from Britain and many of them were remittance men who had been sent out from the old country to make a new life in Western Canada. If they managed to conquer their desire to drink incessantly and gamble all their earnings, the air of the western plains, the hard work and the good company made successful cowboys of them. In the beginning they usually provided a great source of amusement for the native cowboys. Some of them became good Mounties and were famous for their courage and endurance.

One of the most famous riders of the south was Johnny Franklin of Texas who went to work at the Strong Ranch and later volunteered to break horses and get them into shape for the Mounted Police. He won admiration from everyone by his graceful riding, his ability to think ahead of his horse and decide which way he would jump or twist. He was never thrown from an animal. At the Stampede of 1912 Johnny was chosen to be judge of the American bucking horse championship and when asked what he would do if two riders tied, he replied, "I'll just ride both myself. That's the only way to find out which bucks hardest".

Prairie fires were a constant threat to the ranchers and tremendous areas of grassland were often burned black by the careless toss of a match or a spark from a railway engine as it crossed the prairies. A story is told of how one of the early fires was started by Fred Kanouse. He had bought an Indian

pony that looked promising though it had some mangy spots. Fred treated the mangy spots with kerosene and then to prevent any horse thief from going off with his property he took the pony down to the blacksmith's shop. He heated his brand white-hot and pressed it to the horse's side. Within a second a ball of fire shot out across the prairies and before the horse died he had ignited one-half mile of grass which raced away to form a fire which almost burned up the town of MacLeod.

By 1902 the days of the open range had passed and by this year it was fully realized that they were gone for ever. Everywhere the homesteaders and grain farmers had fenced off their land and big round-ups were therefore no longer necessary. The days of the big ranches were over. They were becoming what they should be, big mixed farms where more hay, grain and other fodder were grown. Cattle were taken in off the range and fed hay and grain for finishing.

In 1911 a few of the old time ranchers decided that the story of the big ranches should not just pass away unnoticed but that a great pageant or exhibition should be put on to remind everyone of Alberta's colorful past. These men had all made money from cattle and they were prepared to pay for the Stampede. Thus it was that in September 1912 the first Stampede was held in Calgary.

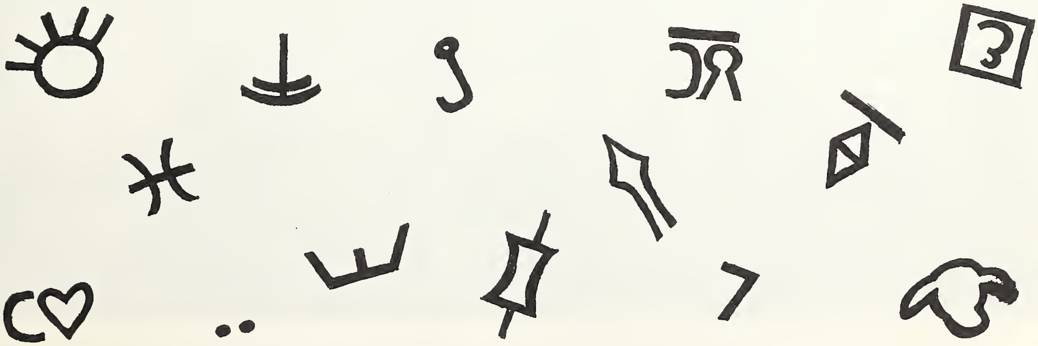
The aim of the stampede was to bring together the Indians in their original costumes, to hold a reunion of old timers, to show what the country had been and what it had developed into, and to bring the finest roughriders and ropers from all over together in a great competition.

Ropers, twisters, bulldoggers all came. Cattle were brought in from Texas and Mexico because Alberta Shorthorns and Herefords were too slow and heavy to require much skill in roping except for the odd wicked animal. Those from the southern States were very fleet footed and could outrun all but the quickest cow ponies.

In the roping contests a young cowboy from Dragoon, Arizona, Ed Echols, roped and tied a steer in twenty three and four-fifths seconds. He was roping one of the strongest and quickest steers known on the ranges. Ribbons, his little cowpony, was said to have "the wisdom of a serpent and the speed of light". Ribbons tossed the big steer high in the air when the rope tightened and leaned against the rope to hold it tight until Echols dismounted, ran to the steer, tied it and threw his hands into the air to show that the job had been done. John Ware, the famous negro cowboy, was dead by this time. He would have nodded approval at the smooth job Echols did. In all the roping contests the men from the United States excelled, as they had been used to the lighter, speedier stock.

In the riding however, there was a difference. Tom Three Persons from the Blood Reserve rode an outlaw horse, Cyclone, who had never been ridden and who had thrown over one hundred riders. The animal humped five feet off the ground a hundred times a minute and used every twist and jar he was capable of, but Tom still waved his hat to the grandstand, and in the end Tom, one of the descendants of the original horsemen of the Northwestern plains, won the rough-riding championship of the world. Perhaps old Crowfoot, in the Happy Hunting Grounds since 1900, smiled when he heard.

Two thousand Indians were there at the Stampede in warpaint and feathers with their travois, squaws and papooses. There were Indians who had fought in wars, Indians in wagons bringing along an exhibit of the crops they had grown, hundreds of cowboys, and a squad of 1874 Mounted Police as well as a group of the 1912 Mounties. Amongst the exhibits was a reproduction of the old Fort Whoop-Up with Fred Kanouse in charge. The Duke of Connaught, the Governor General of Canada, together with Princess Patricia attended for two days of sport. Those who watched could see all the old time color and the development of the West right before their eyes. Thus began one of the most interesting annual exhibitions in Alberta: none have ever been attended with greater enthusiasm than the first Stampede of 1912.



EARLY HISTORY OF THE CITY OF CALGARY

At the time when the white man came to Alberta the Blackfoot Confederacy was in control of the land from the North through to the South Saskatchewan River and its tributaries.

The French traders under de Niverville in 1749 are reputed to have established a fort at the foot of the Rocky Mountains which they named La Jonquière but traces of this have never been definitely found or identified.

Captain Brisebois, the first Mounted Police commander of Fort Calgary, stated that he had found traces of the old fort at the junction of the Bow and Elbow in 1875 but it seems rather odd that at the time when Henday visited the Blackfoot camp in 1754 there were no rumours or reports of a white man's fort having been built previously.

Dr. John McDougall, missionary to the Indians, expressed his doubts. He said that "after fifty years of understanding their language and sojourning with them and studying their traditions and history, I have never heard a word of any house near where Calgary is now." If the French ever did actually build such a fort it was soon deserted.

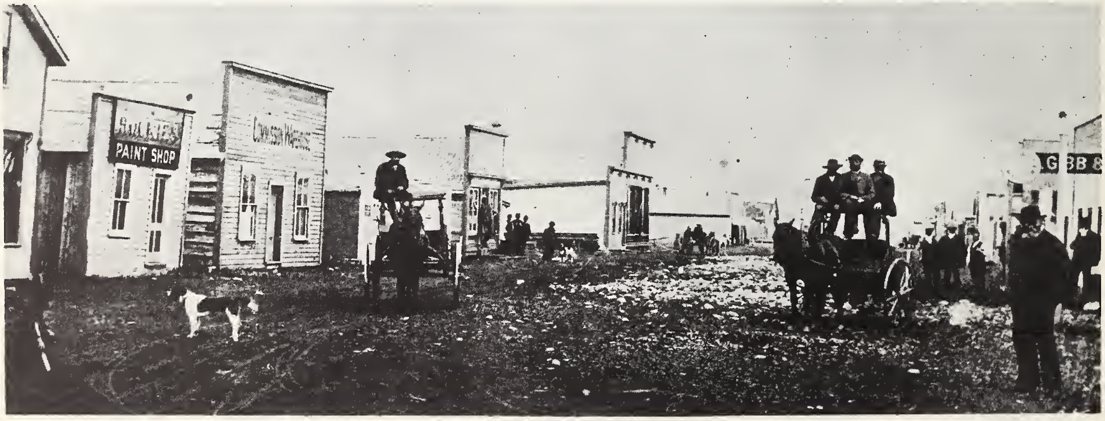
If we are doubtful that de Niverville's men did reach the area where Calgary now stands we are in no doubt about the second visitor. David Thompson came after Henday to the Blackfoot country in 1787. He no doubt saw the present site of Calgary. He said the Bow River got its name from a kind of yew tree which grew along its banks and from which the Indians made their bows (probably Douglas firs). The next to come was Peter Fidler, a Hudson's Bay Company representative, who wintered on the Little Bow in 1792. On his return trip he went to the mouth of Rosebud Creek on the Red Deer River where he saw coal and named the creek Edge Coal Creek.

The Blackfoot were a dangerous people to visit for they were determined to save their country against the invasion of the white man and it was only when the traders from Montana came offering firewater that their resistance was broken. To counteract the evils of the whisky traffic and to bring the story of Christ to these savage people, there came the Christian missionaries.

The first one was Rev. Robert Rundle who in 1841 came to Rocky Mountain House and the next spring went south to the Stony Indians whom he visited. His work was continued by Rev. Woolsey until 1853. Palliser noted of the Stony band in 1857, "Every morning and evening they devote a short time to religious duties and make it a rule to rest from the labours of the chase and travel on Sundays". Thus the work of the missionaries had prospered.

Father Lacombe came next in 1857. Scarlet fever had struck and the Indians asked that he might come to help them. He too contracted the disease but by his devotion and sincerity he won a place in the hearts of the Blackfoot Indians, who asked him to stay with them. For six years he remained and was followed by other Roman Catholic priests, Fathers Scollen and Fourmond. They established a small fort at the junction of the Swift River and the Bow. (The Elbow River was known as the Swift until after 1880). Rev. John McDougall, son of George of Edmonton, was assigned to the Stony area in 1873, and he took up residence on the Bow thirty miles upstream from its junction with the Swift.

Lawlessness in the West continued to a very large extent in spite of the work of these worthy missionaries, and a Captain W. F. Butler sent out by the government to examine conditions there reported in 1871 that a civil magistrate or commissioner should be appointed to administer the law and also a well-equipped force of from one hundred to one hundred and fifty men sent to enforce it. Between the time that the Hudson's Bay gave up their rule of the land and the time that the police took over for the



Calgary 1883

Alberta Gov't Photograph, Ernest Brown Collection

federal government there were a number of incidents which showed only too well the need for some control.

The Cypress Hills massacre, and a Cree and Blackfoot war near Whoop-Up in which numbers of Cree were killed by long range rifles the Blackfoot tribe had obtained from the American traders, decided matters. The force was recruited and by June 1874 was marching west.

Old Crowfoot expressed his pleasure thus to John McDougall when he heard that the police were coming.

"My brother your words make me glad. I listen to them not only with my ears but with my heart also. In the coming of the Long Knives (Americans) with their firewater and their quick shooting guns, we were weak and our people have been woefully slain and impoverished. You say this will be stopped . . . we are glad to have it stopped. We want peace. What you tell us about this strong power which will govern with good law and treat the Indian the same as the white, makes us glad to hear. My brother I believe you and am thankful."

Thus it was that by 1875 the Fathers Scollen and Fourmond were up the Swift River, the McDougalls were at Morleyville and the Hudson's Bay Company had built a fort at the mouth of the Ghost River. A John Glenn had started a farm on Fish Creek where he irrigated fifteen to twenty acres of garden and oats from Sheep Creek with excellent results. His was the first irrigation system in the West.

The valley of the Bow and Swift were attractive hunting grounds for the Blackfoot, Sarcee and Stony Indians as the Bow rarely froze over completely and the buffalo came down to it from the north. Whisky traders were attracted there also and even after the police arrived at MacLeod they would slip up to the Bow Valley to trade before the police knew they were in the country. It was to prevent this trading from continuing that the North West Mounted Police sent a detachment from MacLeod to erect a post at the junction of the two rivers.

The troop under the command of Inspector Brisebois and with Colonel MacLeod along with them set off for Calgary on August 18, 1875. Fifty men on horseback followed by wagons carrying baggage and supplies reached the Bow River in five days' time and crossed the river in wagon boxes covered with tarpaulins. The trip was slow after crossing the Red Deer River because the ground was very soft and also it took some time to cross the Red Deer River itself as it was very high. Then they proceeded south. It was early September when they reached the hill overlooking the Bow and Swift Rivers.

The Bow came in from the west and the Swift from the south west. The site of Calgary was covered with long grass and there were innumerable small lakes swarming with wild fowl. On the south banks there were large trees, some Douglas fir and some cottonwood, and a beaver dam across the Swift had flooded most of the land south of the present Canadian Pacific Railway station.

To the East where the Fourth Street bridge now crosses the Bow the police crossed on rafts and wagons. A Corporal King jumped off the raft and waded ashore, pulling a tow rope after him, and thus was the first policeman to set foot on the area where Calgary now stands.

The police lived in tents while the new post was being built. They chose a bit of flat ground at the forks of the river where a stone now is placed to mark the spot.

The I. G. Baker Company from Fort Benton got the contract to build the fort. They went up the Swift for some dry pine logs and soon the main part of the post was ready. The fort was one hundred and fifty to two hundred feet on the sides, with the quarters for the men on the east side and the storehouses on the west. The fireplaces were built of good stone found in the river while the lumber for the doors and floors was provided by the sawmills run by the half-breeds. The men's quarters were ready for Christmas.

The first Christmas in Fort Calgary was a memorable one with a Christmas Eve dance in the new billiard hall. Supplies of flour, beans, pork, dried apples, sugar, coffee, tea and canned milk had been brought in by the I. G. Baker Company from Fort Benton. The Glenn garden provided fresh vegetables. The dance was well attended by the half-breed girls and everyone enjoyed the Red River jigs and reels.

The residents near the settlement were all invited in for the Christmas dinner which was held in the seventy-foot mess room. There were just tin plates and cups and the table was bare boards but there was canned oyster soup, prairie chicken, trout, deer and buffalo meat, plum pudding, mince tarts, nuts, candies and coffee. The banquet was followed by toasts and songs and another dance.

The name chosen for the new fort was Calgary, derived from a Highland name meaning clear running water though the name "Elbow" stuck to the establishment for a long time. It soon became the name for the Swift instead.

John McDougall came to hold services in the fort and later chose a spot near Pincher Creek in which to establish a mission. In 1876 after three years at the modest mission, George, the greatest protestant missionary of the West, died in a snow storm. He had been out with his son John hunting buffalo and he rode ahead when they were within a mile of the camp, but when John arrived his father was not yet in. They searched for him for days only to find he had frozen to death in the snow and it was thought possible that he had been suddenly attacked by snow blindness. John carried on the work of his father.

The I. G. Baker Company and the Hudson's Bay Company each had a store in the new village and much trade went on in it. In 1876 the I. G. Baker Company shipped fifteen thousand hides south for which they paid about fifty cents apiece and sold for five to ten dollars each in Fort Benton.

Trouble between the Blackfoot and the Cree Indians made it necessary to keep a strict watch at all times. At the crossing of the Bow, about sixty miles below the river from Calgary, a strong detachment had to be kept. The white men called this Blackfoot Crossing, the Indians, "Ridge Under the Water" and it was here that Treaty Number Seven was signed in 1877.

Chief Crowfoot was a frequent visitor to Calgary from that time on. Although in his fifties, he was straight and tall, had an aquiline nose and straight black hair. He wore a scarlet coat, buckskin breeches and shirt. His treaty medal and a framed copy of the treaty hung from a chain around his neck. He was a patient, honorable man and a born leader.

The Indians could hunt over unsettled land but they were given reserves as well. It was a new idea and it took the Indians some time to give up their nomadic life and settle on the reserves.

Professor Macoun, a naturalist, was very favorably impressed by the little settlement of Calgary when he made a trip up in 1879. His description gives a good picture of the outpost and the beauties of the surrounding country.

"Two miles before we reached the fort we stopped on top of the last slope and looked down over the scene. At our feet lay the Bow River and its beautiful valley. As the river wound from side to side it left wooded points on the outer margins of all the bends and from our altitude, water, wood and meadow seemed so beautifully intermingled that the landscape was more like an artist's ideal than a natural picture.

"Calgary itself lay hidden among the distant trees, quietly nestling under a bluff of light colored sandstone, while about a mile beyond in a little grove could be seen the Catholic mission. Outside the river valley the prairie extended roll over roll to the horizon, dotted here and there with clumps of bushes, but altogether without trees except in the valleys of the small streams. Beyond rose the Rocky Mountains like a wall, bounding the horizon to the west and giving a vastness to the picture which the beholder could feel but not describe."

After being shown the farms of John Glenn and Sam Livingstone, Mr. Macoun wrote,

"Here Glenn had 5,000 cabbages, all commencing to head and without doubt the finest lot I have even seen. Barley and oats in the same field were excellent and the potatoes were fine. Mr. Livingstone, another farmer living a few miles off, had also an excellent crop, and all united in saying that the climate was good enough to grow anything. At the Roman Catholic Mission all kinds of grains and vegetables have been raised."

In 1881 the Marquis of Lorne, the Governor General of Canada, visited Calgary and went out to the Cochrane ranch at Morley to see a demonstration put on by the Cochrane cowboys. When the Governor General returned to Ottawa he requested the government to name the new district after his wife, Princess Louise Alberta, who was the fourth daughter of Queen Victoria.

A watchmaker, George Jaques, came to Calgary in 1881 and brought with him his wife who was probably the first white woman in Calgary.

Until the 1880's the great bull teams from Montana brought in supplies or the Red River carts came across the prairies from Regina and Winnipeg. In 1883 there was a stage coach running from Calgary to Edmonton. Leaving Calgary Monday morning it arrived in Edmonton on Friday, and started off for Calgary at the beginning of the next week. The fare was twenty-five dollars and express was carried at the rate of ten cents per pound.

The survey for the railway began early in the 1880's and Major Rogers the surveyor in charge decided that the road would follow the valley of the Bow. By June 14, 1883, the line had crossed the South Saskatchewan River at Medicine Hat.

With the approach to the Calgary area fifteen hundred members of the Blackfoot tribe prepared to go on the warpath if the iron horse attempted to cross their territory. Father Lacombe begged the railway men to stop work, but they refused to stop for Indians. As a result the good priest was forced to call a conference of the Indians. He bought tea, tobacco, sugar, and flour and told them that it would be best to let the white man have his way for the railway would bring them benefits and that nothing would be taken from them. This, together with the tea and tobacco, satisfied the braves.

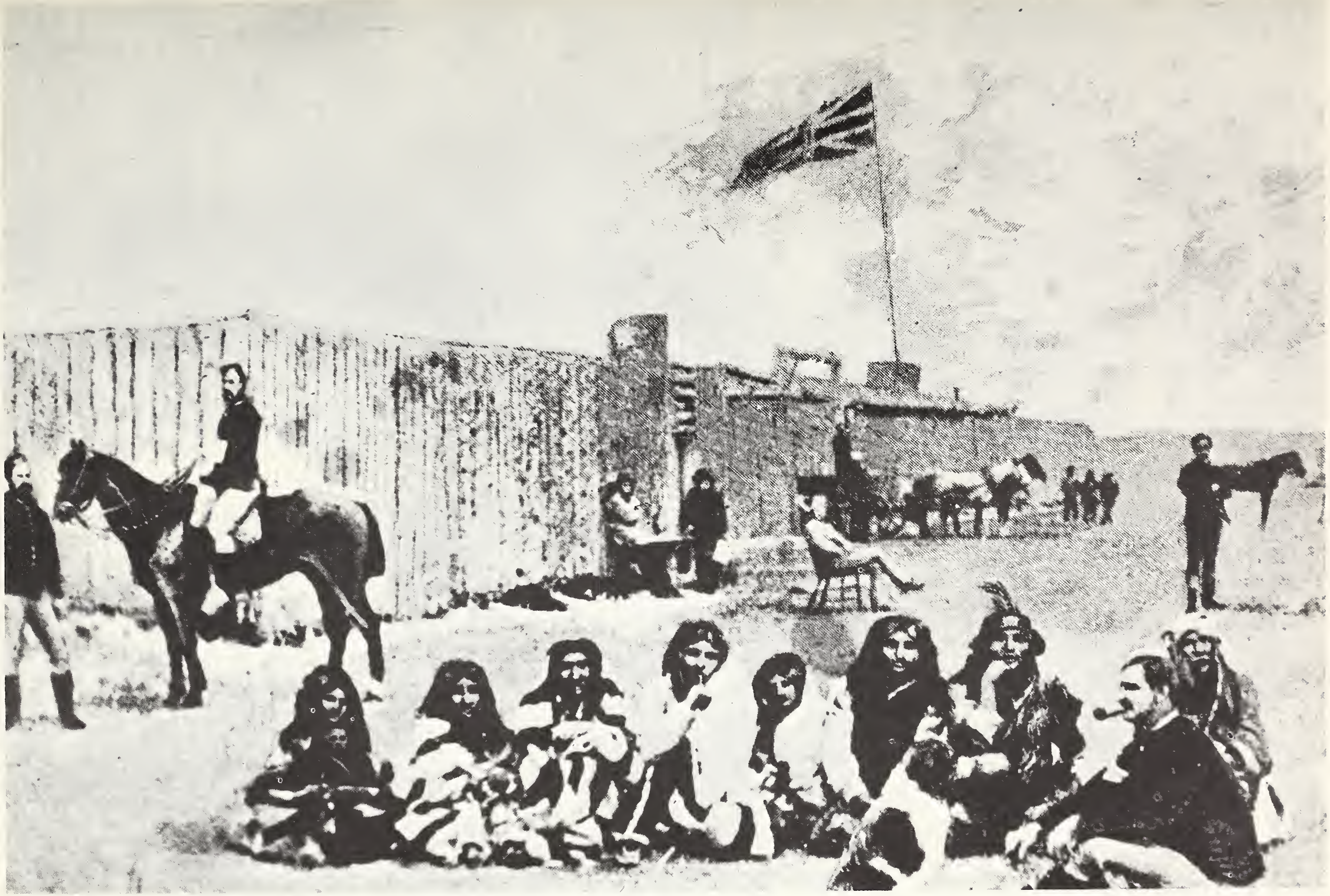
Citizens of Calgary went out east of town to watch the railway line approach. Teams of horses graded the right of way, the ties were laid and the new steel was placed and the spikes driven in record time. On the ninth of August the crews had reached the east bank of the Bow. It took forty-eight hours to build the bridge, then half a mile of track and the old "81" and "126" engines drew eight boarding cars and sixteen flat cars into Calgary.

Calgary was the "end of the steel" for a very short time and now became the distributing center for north, south and west.

Alberta was no longer merely an attachment to Montana. The bull teams from Fort Benton ceased. Calgary was the latest link in the transcontinental chain, building Canada into a nation.

From this time on Calgary grew rapidly and schools, hospitals, railway repair shops, churches and all the buildings we associate with large towns and cities began to mushroom up.

Calgary had a population of 182,000 in 1956 and thus, inside of sixty years, had changed from a Mounted Police outpost to a modern city.



Police and Indians at Fort Calgary 1878
Alberta Gov't Photograph, Ernest Brown Collection

BOB EDWARDS

In the early days of settlement here in Alberta famous characters were abundant. It is impossible to tell about all of them, but some have left an indelible mark in our story. One of these was an editor, Bob Edwards, who achieved fame as the publisher of the "Calgary Eye-Opener".

Bob Edwards was born in Edinburgh in 1864. As a member of a well-to-do Edinburgh family with a publishing house background, Bob was well educated. He attended school in St. Andrews, the Royal Edinburgh High School and the University of Glasgow. In spite of the fact that he tired of the "dreary lectures" in philosophy, logic and metaphysics he nevertheless graduated as a gold medallist from the University. He was labelled as "a young rebel with traits of literary genius".

Bob first went to France and started a small newspaper, but a short time in the Riviera area soon made him aware of the shallowness of society. After this first effort at being a publisher Bob left for North America and Wyoming to be a cowboy. He was instructed to help the cook on the cattle ranch near Cheyenne where he eventually landed, for his qualifications as a cowboy were not sufficient for the rancher to employ him as such. After being a witness to the lynching of a cattle rustler he left the cattle country immediately for Iowa. Here he got a taste of the work of a farmer who stays on the job from 5 a.m. to 11 p.m. One night Bob attempted to milk a mule who by accident had got into the stall of a cow, and the resulting concussion made him decide to leave the farm and go to Canada.

In Winnipeg Edwards met Fred Stimson, manager of the famous Bar-U ranch west of High River, who advised him to go west and, since Bob wanted to homestead, to go north on the railway between Edmonton and Calgary. This Edwards did, arriving in Wetaskiwin without even the money for a meal. After a short period as a carpenter in Wetaskiwin, Bob decided to do something of more worth, and established a paper called the "Free Lance". According to Edwards, Wetaskiwin on October 23, 1902, "had a population of two hundred and eighty-seven souls plus three total abstainers".

Edwards did not stay long in Wetaskiwin. From there he went to Leduc and then to Strathcona (South Edmonton) but could not settle in either place nor make money. Edwards' fits of industry were offset by his periods of intoxication and he was incapable of collecting money at any time.

Soon Bob was off to work for the Free Press in Winnipeg for he could not make ends meet working for himself, but neither was he suited to steady work for other people. Jerry Boyce who had been hotel manager in Wetaskiwin and who was a lasting friend of Bob's wrote to him from High River where he had moved "Come back to these parts—where nobody locks his door, and try again".

So Bob came back to the ranch country. High River at this time (1902) was rich in cattle traditions and the cowboys were a fine crowd. Bob set up in business once again and his newspaper circulated widely though not regularly. Bob could not keep away from alcohol and all work was done by fits and starts, but the paper received notice all over the province and many from far away places.

At High River Bob invented a fictitious character called "Bertie". Bertie was a young English remittance man who had come out to be a rancher, but like many of the remittance men of real life Bertie wasted all his money on riotous living and did nothing useful. His classical type of education fitted him for nothing in the new land and his inclinations were to live on his money until it was exhausted. Bertie's letters sent home to his father in England asking for more money are a good example of what Edwards could do in the field of creative writing. Bertie was supplied by Bob with an infinite variety of excuses for requesting money. The following letter gives some idea of Bob's style:

Peace River, N.W.T.
The Fall, 1902.

Dear Father,

I often think of dear old Skookingham Hall and the splendid shooting. How I should enjoy one of our good old grouse drives again. The only shooting I have done out here of late years has been at craps, a different species of game from grouse or partridge. About things in this country — the few thousand pounds you gave me to start farming with in Manitoba were duly invested in a farm. In my labours I had several assistants. Hi Walker, Joe Seagram, Johnny Dewar, Benny Dikteen, men of exceptional strength and fiery temperament and in place of serving me as their master, soon became my masters. So it was not long before I had no farm. I then quit farming and went tending bar for a hotel keeper in the neighboring village whose prosperity seems to have dated from the hour of my arrival in the country.

The love of liquor which I must have inherited from yourself or my grandfather made me a failure as a bartender and I soon got the bounce. So I packed my things in a large envelope and hit the blind baggage for the West where I went cow-punching. Worked all the summer till the beef gather and lost all my wages in one disastrous night at poker. After a long hard winter as cookee in a lumber camp I struck for Peace River country where I am now.

I am married to a half-breed and have three ornery-looking copper-colored brats. We are all coming over to visit you at Christmas when you will be having the usual big house party at Skookingham Hall. I shall so like to see the dear place again and my wife is most anxious to become acquainted with her darling husband's people and obtain a glimpse of English society. The Hall will be quite a change for her from the log shack and teepees she has been used to all her life.

If I only had about a thousand pounds just now with which to start afresh, I would invest it in cattle right away, settle down to business and forego the pleasure of a trip home and remain right here. But I do not know where to lay my hands on that amount. The climate here is lovely. With love and kisses to mother and the girls, believe me dear Dad

Your affectionate son,

Albert Buzzard-Cholmondeley.

Bertie was later put into Fort Saskatchewan jail and wrote home to his father for £1,000 to hire the lawyer Paddy Nolan to get him off a murder charge. Bertie's adventures, from week to week or from publication to publication, were eagerly awaited and even many of Edwards' avowed enemies enjoyed reading the latest on Bertie.

Some unfortunate escapades in High River resulted in Bob leaving to go to Calgary. For instance he played a trick on the Methodist congregation who one evening had assembled to hear some recorded hymns. Edwards slipped a popular recording into the place of one of the hymns and scandalized the church people. Many thought and spoke of him as "that dreadful man".

In Calgary Edwards met many people who understood his kind of humour. Among them was Paddy Nolan, the Irish lawyer (who was a real life lawyer and a well-loved character of the early days) who welcomed Bob to Calgary and helped him to get settled in the new place.

Bob had long been known in Calgary for the jibes and digs he made at Calgary local government figures and stuffy people who paraded their money and their righteousness.

In Calgary Bob tried to be more regular about turning out his paper but the old devil drink was usually too much for him. He was a regular visitor to the Holy Cross hospital for "sobering-up" times.

However, "The Calgary Eye-Opener" became Calgary's best entertainment. Bob described the town as being the "logical leader in all that is fashionable, immoral, gay and joyous in the Territories".

One night on the way home from a bar Edwards evidently saw a hearse standing outside, and describes his adventures in his paper thus:

"*Passing Shover and Graham's undertaking rooms this adventurer espied the hearse standing outside all ready hitched up, the end doors open where you shove in the coffin. He began to wonder what it felt like to be a corpse in a hearse. The driver being in the office he seized the favorable opportunity to find out what the sensation was like and crawled inside slamming the end doors after him. Hearing the doors slam, the horses thought the funeral had started and promptly ran down the Avenue. The gentleman rattled around inside like a pea and from the way the handles were fixed could not open the door from the inside. Away down near Fourth Street a couple of N.W.M.P. recruits were walking up from the barracks and saw the hearse coming, tearing down the street. Here, thought they, was the time to make a rep. and get in line for promotion. Stepping out in the middle of the road they succeeded in stopping the runaways, which they tied to a post pending developments. They thought they had better see if there was a corpse inside and if so if it was all safe. Opening the end doors and peering in they saw a dilapidated form creeping gingerly towards them. With a yell they took to their heels and made for the barracks on the dead run. The man himself got sobered up with the jolting and mounting the seat drove the hearse back to the infuriated proprietors. As for the policemen all the satisfaction they got when they related the gruesome story was a lecture from the Sergeant-Major on the dangers of going up against Calgary whisky. He advised them to cut it out.*"

From "The Calgary Eye-Opener"
of April 30, 1904.

Edwards made the Alberta Hotel the center of his operations. Here he discussed with the bright lights of those days the news, political and otherwise, of Calgary and district. Much of it found its way into "The Eye-Opener".

After various episodes including a campaign against the C.P.R. for failure to install safe crossings in Calgary, and a libel action which Bob won against the editor of The Calgary Daily News, he left for Toronto. During the years 1908-9 Bob stayed there, but Toronto the Good as it was called was too dull for Bob. The Reform League did not like the comments he put in his papers. The difference between the wealthy and the poor was very evident and Bob's comments on the situation were bound to hurt. He started back west and came to Port Arthur, Winnipeg and finally at the end of two years was back in Calgary.

There once again his bowler hat was a familiar sight on the sidewalks, and at the Albertan office where his weekly was printed he personally handed out the quota to each newsboy. Within six weeks of his return his circulation was up to twenty-six thousand.

In 1915 there was a great prohibition drive on in Alberta. Bob took the side of the prohibitionists even though he was an alcoholic. His sense of public responsibility was keen and he felt he owed it to his thousands of readers to use his influence as he should rather than as he liked. He said this plainly in his paper. He was, it is said, offered several thousands of dollars to come out in favour of the wets rather than the drys, but he stayed on the side of the drys even though he was away in hospital sobering up when the vital issue containing his views was published.

Bob wrote editorials on health, on good and bad doctors, on free hospitalization for the poor, on the tariff on farm machinery which was breaking the farmers, on the senate, in fact on every subject that was of vital interest to Albertans.

In July 1922 Edwards was prevailed upon to run for member of the Legislature in Calgary as an Independent. He did his campaigning in the paper, for Bob was too shy to speak and so he said that people were bored with public speakers. He polled the second highest vote in a field of some twenty candidates, and thus was elected.

Bob attended the first session and spoke for sensible liquor laws which would prevent bootleggers from flourishing. He had decided to give up drinking as a result of the faith the voters had put in him. His old drinking pals now found the editorial office a dry place to visit. Bob Pearson who was also a member of the Legislature helped all through the first year and was a constant companion, realizing that though Bob's desire for drink was strong, one characteristic he had which could be counted on to help was his intense honesty. He could not be a hypocrite. He had taken a stand against liquor in public life and he must conquer it in private.

After the session his friends expected to see him "off the wagon" but this did not happen. Bob was prouder of his personal achievement than anyone realized. In July 1922 he published his last "Eye-Opener" and in November of that year he died.

The Lieutenant Governor, The Honorable R. G. Brett, said, "Big-hearted, genial and lovable Bob is dead". One of the most colorful characters of the early frontier was gone.

SETTLEMENT OF THE WEST

In many ways Canada benefited from the experiences of those who supervised the settlement of lands south of the boundary line and settlement of western Canada paralleled that of the interior of the United States in manner.

The fact that France owned the Louisiana area in the United States delayed settlement from the Atlantic coast, and in Canada the Hudson's Bay ownership of the lands whose waters flowed into Hudson Bay also delayed settlement from the East. Early settlers in the East had not been tempted to move west because of the difficult terrain between them and the West and the lack of adequate means of transportation. The purchase of both Louisiana and the Hudson's Bay territory by the respective federal governments opened the doors to settlers.

The steps which led to the final settlement of the Canadian West are clear cut. First, in 1867, there was Confederation, then in 1869 the sale of the prairie lands by the Hudson's Bay Company to the government of Canada at a price of one and a half million pounds. The Hudson's Bay Company was given three hundred acres around each trading post and one twentieth of all the land from the North Saskatchewan River south.

In 1869 the West was surveyed and land was divided as it had been done in the United States, that is, into squares called townships, sections and quarter sections. As a result of this survey came the Red River Rebellion, the first uprising of the Metis, who were afraid of what was going to happen to them and their river lots along the Red River. The central government, too far away to realize the dangers, blundered in not reassuring them. However, by 1870 everything was brought under control and the province of Manitoba was formed.

Next came the police force to the prairies in 1874. Details of their work can be found elsewhere in this book. One of their early problems, however, was to get rid of the American whisky pedlars in southern Alberta as they were making settlement unsafe and undermining the health and integrity of the western Indians. The police were also needed to safeguard the building of the railway which would cross the prairies. Settlers would be attracted by the railway but would need to feel some security to take up land. The whisky traders' forts were soon cleared out and the police established posts. By 1875 they were in firm control.

The plan to settle the prairies by giving blocks of land to the C.P.R. was an idea which came from the United States. The company was given financial backing by the government and a large grant of land so that they might institute a land settlement scheme. In both the United States and Canada this had become the accepted method of inducing companies to build railways.

It was in 1872 that the federal government offered a grant of fifty million acres to any private company which would undertake the building of a transcontinental railway. In 1878 this offer was stepped up to one hundred million acres and the idea of giving alternate sections of six hundred and forty acres was adopted as in the United States.

In 1880, two years after a pledge had been given to British Columbia that a railroad would be built, a group of Minnesota business men (railroad builders) together with Donald A. Smith, Chief Commissioner of the Hudson's Bay Company and George Stephen, then president of the Bank of Montreal, and a group of other men formed a syndicate to build a railroad, the Canadian Pacific Railroad. Twenty-five million dollars in cash and twenty-five million acres of land were given to them on alternate sections of six hundred and forty acres twenty-four miles deep on either side of the railway.

The Route Chosen

Sir Sandford Fleming had been given the job of finding the best route through to the Pacific coast. He had been the chief engineer in the building of the Intercolonial Road in the Maritimes and had earned his good reputation there. The road was to begin at Lake Nipissing and run west: difficult going would be met early as a thousand miles of muskeg and forest lay between the lake and the Red River. It was not expected however, that the prairie lands would offer much difficulty, but in 1863 Captain Palliser, an engineer, had reported to the British Government that part of the American desert projected into Canada and that the area would have to be avoided as it was unfit for settlement. "Palliser's Triangle" as it was called lay from the Rocky Mountains east to 100° west latitude along the 49° parallel with the apex as far north as 52° north.

Another surveyor N. Y. Hind on a previous expedition had recommended the territory north of this as a fertile "rainbow" belt including the valleys of the Red, Assiniboine and North Saskatchewan Rivers.

Fleming chose the Yellowhead Pass for the trans-Canada line, so that the road might cross this fertile belt of the prairies and thus avoid "Palliser's Triangle". When the contract was finally let, however, the C.P.R. made changes in the route, and the line was put south nearly parallel to the southern boundary line, and went through the triangle after all. The reason for this was that in 1880 a C.P.R. employee, John Macoun, who was attached to the engineering division, declared that Palliser had been deceived and that the area he designated as being too dry was merely one which had a clayey soil that would not hold moisture until it had been broken up by the plough. Time has since proved that Palliser's report was correct.

Thus Fleming's route was not chosen but his findings were used a great deal in the building of the second and third transcontinental railways, the Canadian Northern and the Grand Trunk Pacific, later known as the Canadian National.

The Canadian Northern, Canada's second transcontinental railway began in 1896 with a charter obtained by Mackenzie and Mann for a railway in Manitoba. By lucky chance in 1901 they obtained a lease on an American railway which ran into Winnipeg, and by 1905 they had built across Saskatchewan into Edmonton. In 1902 they got permission to build eastward and westward to Vancouver through the Yellowhead. They were given many millions of dollars and six and a half million acres of land. In 1914 the railway was in great difficulty and in 1917 the government was forced to assume the debt of the Canadian Northern and later the Grand Trunk Pacific had also to be absorbed.

The C.P.R. started across the prairie land in 1882 and reached Alberta in 1883. With its coming the great trading route between Calgary and Fort Benton went out of use, and Calgary became the distributing point for Southern Alberta.

The government promised they would obtain permission for the C.P.R. to build across Indian lands but failed to ask the Blackfoot Indians if they might build across their reserves. This caused resentment especially among the young braves of Crowfoot's tribe: the survey in the Northwest Territories and the division of some lands formerly belonging to half-breeds roused those in the Saskatchewan area to rebel. Fortunately the good influence of the missionaries in the Blackfoot area together with the fact that the police at the nearby posts were very much respected, kept the tribe from joining the rebellion. The northern groups of Cree under Big Bear and Poundmaker with Louis Riel as leader came out in open rebellion, however, and a large force of police was required to bring them into line.

By November 7, 1885, the last gap in the first trans-continental railroad, the C. P. R., had been closed. The first passenger train was taken through from Montreal to Vancouver. By 1916 three transcontinentals had been built, the first into Calgary being the Canadian Pacific and the first into Edmonton the Canadian Northern.

Land Settlement

The campaign for the sale of lands by the C.P.R., the Hudson's Bay Company and for the homesteads offered by the Canadian Government after 1890 resulted in the prairie and parkland being settled in nearly all areas, although not all parts outlined were immediately filled in.

Under the Canadian Homestead Act of 1872, the Dominion Lands Act as it was called, settlers on paying a registration fee of $10.00 could file on one hundred and sixty acres of land. Title to the land could be secured at the end of three years if the homestead requirements of cultivation had been met.

The agricultural population was expected to grow wheat. The shipping of wheat to eastern ports for markets and the carrying back of supplies for the western farmers would make the railway pay: the East and the West would realize how dependent they were on each other. Thus it was that the C.P.R. became the first great link between East and West, and opened the doors to settlement.

OTHER CITIES OF ALBERTA

Medicine Hat

In 1890 the discovery of natural gas which could be produced cheaply attracted many settlers and businesses to the Medicine Hat area.

There are several legends to explain the origin of the name Medicine Hat: one is that during a battle between the Cree and Blackfoot tribes the Medicine Man lost his war bonnet in the river: another is that the first name for Medicine Hat was "saamis", a Blackfoot name meaning war bonnet.

Hatfield the Rainmaker made the city famous in 1921 when he came from the United States on a rain producing mission. He was promised $8,000 if he would make rain fall in the area. When he arrived from the United States he was given a splendid reception by the citizens of the city and then escorted out to Chappice Lake where he set up a large tower containing trays of chemicals. The fumes from these were to rise up to the clouds and condense moisture in them so that rain would fall over an area of one hundred miles.

The rain came and it continued to rain for four days. In all 4.24 inches fell, then it stopped and dried up; the wind began to blow and Hatfield could not "make" any more rain. He said the clouds were too high while onlookers commented that the clouds were just "empties" coming back. Finally a collection was made and Hatfield was given about $5,000 for his 4¼ inches and with this he slipped away home.

Medicine Hat is well known for its high grade pottery products and for its bricks and tiles which are made from local clay. The city has a very low accident and mortality rate of which the citizens can be very proud.

Red Deer

Red Deer was established when the Reverend Leonard Gaetz, a Methodist minister, came to the place where the Edmonton-Calgary traffic forded the Red Deer River, the place known as Red Deer Crossing. This was in 1884. From that time on settlers began to come in and a little village began to grow. It is said that for a few months a casino operated by Americans was open all night to travellers until the mounties moved in and closed it down.

Half a mile northeast of the city there is a park of two hundred and fifty acres containing two small lakes. The land was donated by Gaetz and it has become a wild life sanctuary. Over one hundred varieties of birds nest in the park and among the many wild flowers that grow there at least two species of wild orchid are to be found. Amongst the many small animals that have made the park their home is a remarkable little beaver mouse or water shrew that sings in a voice so high that it is barely audible to the human ear.

Red Deer is a frost free area in the growing season with about 20 inches of rainfall a year, and it has never had a crop failure.

Drumheller

Drumheller's importance for many years was linked with the fact that it marked the largest Canadian coalfield, but today it is known as the city of the Badlands. From Three Hills to the Saskatchewan boundary the valley, which has banks five hundred feet high eroded out into hoodoos in many places, is a source of interest to visitors. In the exposed Cretaceous rock of the valley petrified wood, tropical fruit, cones and shells are to be found. Thirty complete dinosaur skeletons have been taken out, and periodically new searches and excavations for fossils are carried out. In other parts of Alberta a few bones and giant footprints in the prehistoric mud are all that can be found intact. As a result of the quantity and quality of the fossils found in the Badlands the whole area has been turned into a museum and visitors come from all over North America to see evidence of the life of fifty million years ago.

Wetaskiwin

In 1867 the Blackfoot and Cree Indians in the Wetaskiwin area smoked the peace pipe, and the name Wetaskiwin was given to the spot for in Cree it means "the place where peace was made". Maskepetoon, a great Cree chieftain who became a Christion through the efforts of John McDougall, was also connected with Wetaskiwin. He was such a great chief that he conquered all his enemies, and then set out to be a fighter for peace. To his father's murderer he offered his father's horse and said that the man must be his foster father. In the end Maskepetoon was shot by a Blackfoot bullet when he was about to go into their camp to offer peace. His followers tried to act as Maskepetoon would have wished and did not retaliate at the time. It is said that in Edmonton in 1870 the Cree got their revenge on the Blackfoot warriors but that there was no fighting at Wetaskiwin. In honor of Maskepetoon the hills around the city are known as the Peace Hills.

Lethbridge

Lethbridge has been important for buffalo hides, coal mining and cattle ranching in that order, and since irrigation, for sugar beets, potatoes and vegetables. It is also famous for the hours of sunshine and the Chinook winds. A few miles away the dam on the St. Mary River has formed a great lake six miles wide. This provides water to make "green acres" as the area is sometimes called.

Lethbridge has much history connected with it. The famous Fort Whoop-Up was nearby. In the park in Lethbridge there stands a cannon which had been brought by Hamilton to Whoop-Up in 1871. The last great battle between the Cree and Blackfoot tribes was fought in 1870 on the site of Lethbridge. Two hundred and fifty Cree and seventy Blackfoot warriors lay dead as a result. The next year the peace pipe was smoked on the banks of the Red Deer.

The latest cities of the province are Camrose, Grande Prairie and Lloydminster. They are the result of the rapid expansion of our economy. It will be interesting to study the growth of these new cities.

Population of the Cities of Alberta, 1959

Edmonton	280,000	
Calgary	223,500	
Wetaskiwin	4,476	
Drumheller	2,632	
Lethbridge	32,780	
Medicine Hat	21,079	
Red Deer	16,501	
Grande Prairie	7,277	(1958)
Camrose	5,960	(1955)
Lloydminster	2,737	(1958) (Alberta section only)

HISTORY OF OUR NATIONAL PARKS

Banff is the oldest national park in Canada. In June, 1841 Reverend Robert Rundle, the first white man to visit the area where Banff is located, camped for the summer at the foot of Cascade Mountain. He visited the falls and climbed Cascade Mountain in June of that year. All summer he preached to the Stony Indians.

Sir George Simpson, head of the Hudson's Bay Company, passed through the park in 1844 and in 1845 a Father P. J. de Smet who had been ministering to the Indians of the Washington area decided to visit the Indians on the east side of the mountains. He came to Banff by way of the Whiteman Pass and went on up to Jasper House.

In 1857, the Palliser expedition was told to explore and locate a railway route to the Pacific and on August 18, 1858, Dr. Hector, one of the leaders, arrived in Banff. He went through the Vermilion Pass to what is known now as Kootenay Park and back through to Banff by way of Kicking Horse Pass.

The Indians who were fierce and determined had stood in the way of the Palliser group entering the Banff area. The mountains were in sight but they were not allowed to go ahead. Then a strange thing occurred. An epidemic of dysentery broke out in the Indian camp and many children died. Dr. Hector hurried to the camp and with his medicine kit was able to cure many of those who were ill. The tables were turned, and he was now provided with an escort party to Banff and on to the West.

When Dr. Hector came back through the Kicking Horse Pass, which at that time was unnamed, his horse had to be forced to go through the water of the Kicking Horse River. It kicked him so violently that he was knocked unconscious and his companions, it is said, dug a grave for him thinking he had died. However, he revived before they had lowered him into the ground.

In September of 1881 when a survey party was running a line from the summit down to the south side of the Bow River, the hot springs—now known as the Cave and Basin — were discovered.

When the working crew was building the railway it was planned that a tunnel was to be put through what was known from then on as Tunnel Mountain. William van Horne, the chief engineer, objected to the tunnel on account of the cost and Shaw, engineer in charge, took a walk up Tunnel mountain to see if it could be avoided. He saw the Cascade River and the area through which it runs, so the future town of Banff was located around to the west of Tunnel Mountain instead of on the plain behind it.

Long before the white men came to Banff the Indians were aware of the curative powers of the mineral waters. The Stonies often visited the hot springs, and some of the tribe would fish and hunt, while others who were ill or had rheumatism would bathe.

The first white men to discover the lower springs were Thomas and William McCardell and Frank McCabe. They had made a raft to cross the Bow and explore, when they came upon the hot spring. They found where the fumes from the warm sulphur springs were escaping from a rock. They enlarged the hole a little.

Rock formed the dome of a natural cave which they entered by means of letting themselves down through the hole on a rope. A forty-foot space was filled by a bluey-green lake of hot and steamy sulphur water with a little beach on one side and steep walls on the other. Stalactites hung from the roof of the cave and sparkled like diamonds. The men built a cabin close to the spring to claim it for their own and the three wrote to Ottawa for permission to file on the land so that they might commercialize it.

When the news of the find reached eastern Canada a member of the House, Woodsworth, came out with an interested group to see the springs. He bought Frank McCabe's holdings without the knowledge of the other two who immediately got a lawyer to untangle the dispute. The government at this time bought out the squatter rights for the Dominion and the hot springs from then on became government property.

Banff became the first national park in Canada with an area of roughly ten square miles in 1885. The idea of having national parks spread from this time and today they are to be found right across the Dominion.

Since that time the park has been enlarged to include two thousand five hundred square miles. The government made a huge swimming pool at the basin after tunneling through the cave. Many notable people climbed down a ladder into the cave by way of the old route, however, amongst them the Prince and Princess of Wales, Lord and Lady Minto, Sir John A. MacDonald and his wife.

Jasper National Park

Jasper became known earlier than Banff. David Thompson had explored the area and discovered Howse Pass in 1810. From this time on Jasper was on the trans-Canada route to the Pacific coast. The route was called the Athabasca Trail and ran from Winnipeg to Edmonton via Lake Winnipeg and the Saskatchewan River with a seventy-mile portage from Edmonton to Fort Assiniboine on the Athabasca. (This has been described in Paul Kane's story.) From that point travellers ascended the Athabasca River to Jasper and then portaged up the Whirlpool River to the Athabasca Pass, and down the Wood River to the boat encampment on the northern bend of the Columbia River. This boat encampment which was founded by Thompson operated for fifty years.

During the time of the Hudson's Bay Company, Jasper Howse was the trader stationed at Jasper and the post was named after him. It was called Jasper House.

In 1884 Jasper House was abandoned by the Hudson's Bay Company and in the summer of 1892 a settler, L. J. Swift, came to the Jasper area to live. He ran a trading post at the old establishment for a time and then filed on a homestead in the area of the valley known as Henry's Flats. (The North West Company's post had been called Henry House.)

In 1909 when the survey for the railway, to be known later as the Canadian National Railway, went through it was decided to set aside the area which seemed well suited for a park. Jasper Park is the largest scenic national park in Canada, and contains an area of some four thousand two hundred square miles.

Elk Island National Park

Elk Island was the first national park in Canada to be set aside primarily as a wild animal reserve, when in 1913 seventy-five square miles of land were established as a national park. In 1906 this land had been set aside as a sanctuary for elk, moose and mule deer. At the beginning of the twentieth century there were very few buffalo left in the West: some were in captivity in Banff and some still roamed wild in the area around Great Slave Lake. In Montana, however, a rancher called Michel Pablo had raised buffalo as well as cattle on his ranch, and he sold his herd to the Canadian government. These animals were destined to go to Wainwright where an area had been set aside for their preservation, but the fence around the park was not complete. Five shipments were sent off by freight car to Elk Island, and many were also sent to Wood Buffalo Park in the north. The buffalo in Elk Island have increased in number as they are protected and also because none of their natural predators live in the park. From time to time some are slaughtered so that the herd may not become too large for the amount of pasture available. There are at present about one thousand of them in the park.

Wood Buffalo National Park

This is the largest wild animal park in the North American continent, and covers an area of 17,300 square miles. Much of it lies in Alberta and the rest in the North West Territories. It was established in 1922 for the protection of wood buffalo, and when the park in Wainwright was closed in 1940 because of disease many of the animals were sent to Wood Buffalo Park. Vast herds of animals now roam there on unfenced land.

Waterton National Park

This park was established in 1895, and forms part of the Waterton-Glacier International Peace Park. The international boundary line runs through the middle of Upper Waterton Lake. The park covers an area of two hundred and four square miles. The area was once called the Kootenay Lakes district, but was renamed after a British naturalist, Charles Waterton. It contains some of the most magnificent scenery in Canada.

Nemiscam National Park

This park is quite small and is reserved for prong-horned antelope. It is in the southern part of the province.

SOME OF THE GROUPS OF SETTLERS

The Coming of the Mormons

In the year 1886, Charles Ora Card, an official of the Mormon Church in Utah, came north to Alberta with two other men to scout around for new land. They found the same kind of dry land they had been used to in Utah with streams from the mountains crossing it. Tall grass waved in the breeze from the Chinook wind. Card and his friends decided to choose a portion of the land which had formerly been leased by the Cochrane ranch south of the Blood reserve.

In the spring of 1887 a larger group came north, planted vegetable gardens and then went back home for their families. In June forty-one men, women and children journeyed the eight hundred miles overland from Utah to make their homes in Alberta.

"*Life on the trail was not too bad. When we camped at night we would gather around the camp fire, sing songs and tell tales. President Card would tell us about our new home in Canada.*

"*We crossed the boundary line into Canada on the first day of June, a day I shall never forget. The weather was wet and the St. Mary's River was high. On the banks of the St. Mary's we met the first white man we had seen in many days. He was a settler and kept a stopping place. We also met two Mounties who showed us a place where we could ford the river. We managed to get across without mishaps by doubling up teams and by tying down our wagon beds so they could not float away.*

"*On the third day of June we landed at Lee's Creek. There we found the original company who had come north with President Card the year before. They were well established with comfortable homes and good gardens. There was plenty to do for all of us, young and old. We cleared the willows and pitched our tents to shelter us for the night. Six inches of snow fell the night we arrived and it looked pretty bleak the next morning. But I remember the good grass covering the hills. It told me that this must be pretty good country for cattle. It proved to be and still is.*"

The first Mormons began to irrigate their gardens with the water from Lee's Creek. By 1896 they had quite a large local irrigation system working. In 1893, to irrigate the semi-arid lands to the east, the Alberta Irrigation System was formed by the Mormons with the backing of the Galts of Lethbridge. In 1898 fifty miles of canal construction was built by the members of this church from Kimball to Stirling. At Raymond, Magrath and Stirling there grew up planned towns.

Water is now dammed up from Bow River in Chestermere Lake for irrigation purposes. The largest dam in the irrigated area is at Bassano where the Canadian Pacific Railway company built the original dam and irrigation ditches. A farmers' cooperative later took over from the railroad.

One Mormon who assisted greatly in the development of southern Alberta was Jesse Knight. At the time he came to Canada in 1901 it was difficult to obtain money for industrial development. In fact, at this time little thought or consideration had been given to industries other than ranching. Knight bought a large tract of land near Spring Coulee, a few miles from Cardston. On the thirty-thousand acres train-loads of cattle were turned loose.

The Canadian Northwest Irrigation Company and the Alberta Railway and Irrigation Company wished to sell lands and from them Knight bought two hundred and twenty-six thousand additional acres of land for the purpose of growing sugar-beets. Knight established the little town of Raymond with its sugar-beet factory. Three thousand acres of land were broken the first year and by 1903 the first good-sized crop was delivered to the factory.

For a twelve-year period the plant operated, then high prices for grain and favorable weather conditions induced farmers to grow grain. The factory closed down and was moved to Utah. But after the first Great War demands for a new factory were heard. Falling grain prices and dry years caused farmers to turn to irrigation and sugar beets once again. The factory returned and was so successful that it was bought out by the Vancouver sugar interests. A second factory was built in Picture Butte in 1936, and a third one in Taber in 1948.

In 1906 the number of acres in sugar beets was 3,300; in 1931 it had increased to 11,937 acres, in 1953 to 35,000 and in 1958 to 38,000 acres.

In 1957 Alberta exported eighteen thousand tons of sugar indicating that we are more than self-sufficient although the import of brown cane sugar cuts this figure to some extent.

This is the story of the beginning and the growth of an industry of considerable importance. It began with the vision of a man who saw great possibilities in the irrigated areas of the south.

Alberta is advantageously situated with respect to a supply of water for irrigation. The semi-arid part of the Province is traversed by the six largest tributaries of the South Saskatchewan River; and the topography of the region makes possible the construction of storage reservoirs at relatively low cost. Moreover, the streams are fed by mountain glaciers that provide water in quantity during the summer months when irrigation is in progress.

Surface waters are vested in the Crown and are administered under the Water Resources Act. The Irrigation Districts Act provides for the formation of irrigation districts and authorizes the raising of loans under by-laws adopted by voters of the district.

There are now fifteen major irrigation projects in operation containing 802,000 acres of land made ready to receive water. However, the expansion of irrigation facilities is continuing. Completion of the St. Mary and Milk River projects alone, will add a further 376,000 acres of irrigable land. The total potential irrigable area in the province, including privately-owned projects is estimated at nearly two million acres. In 1950, 4,044 farmers reported an average irrigable area of 140 acres. Assuming that the area irrigated per farm remains the same, a total of approximately 14,000 irrigation farms may be developed in Alberta.

In the irrigated areas there are four main types of farms. These are grain, livestock, specialty crops and mixed farming types. From 45 to 55 per cent of the crop land is seeded to wheat. Wheat acreage is highest in districts with no facilities for handling specialty crops. For that reason, sugar beet production is centered at Raymond, Picture Butte and Taber, and canning crops are grown at Taber and Lethbridge. Alfalfa seed production is a specialty at Brooks. Mixed farming is most generally followed on the larger farms.

The raising of livestock is well distributed throughout the irrigated districts, and large numbers of cattle and sheep are brought in from adjoining range lands for finishing. Feed supplies are assured and the by-products of the beet and canning industries are utilized.

The development of markets will determine the future course of farming in irrigated districts. It seems probable that the acreage devoted to specialty crops will increase and that livestock feeding operations will expand. For many years yet, however, a high proportion of the farm income may be expected to come from the sale of wheat and the products of mixed farms.

The Barr Colonists

In 1903 the Reverend I. M. Barr brought his famous Barr Colonists to Alberta. They were a group of about two thousand English settlers who, enticed by stories about Canada, decided to travel to the prairies to seek their fortunes. Many of the group were inexperienced in farm work and had no knowledge of how to perform the simplest operations. Many did not even know how to drive a horse.

They were lured west by the prospect of free land of their own choosing, wild birds and game with no game wardens lurking by, and streams full of fish for the taking. It all sounded very promising and the expedition left London in the early spring of 1903 bound for the new land.

The ship which arrived at St. John after a slow, tedious voyage transferred its passengers to five long trains which sped across the country to the prairies and north to Saskatoon. This was the "end of steel" for the Canadian Northern Railway at that time. The right of way had been surveyed, however, and the settlers knew which direction the line was to take through the country to Battleford and beyond. They pressed westward to the place where the fourth meridian crossed the right of way and there in a group chose land.

At Saskatoon they had been dismayed to find such a tiny frontier town and prices of equipment so high. Most of them purchased tents and wagons and horses and started on the long trek west. It was April and the land was beginning to turn a soft beautiful green; the prairies were covered first with crocuses and then with buffalo beans, and looked inviting. However, melting snow had filled every draw with rushing water which presented a problem in crossing. Those who did not know how to drive a team had to learn quickly how to brake the back wheels to prevent the wagon from pushing the horses head first down the slippery slopes. Runaways, broken wagons and upsets were frequent but at last the homesteads were reached.

The land along the river was not as rich as that farther back and a quick search was made for survey stakes so that note could be made of the number and filing completed.

During the summer the colonists broke land, planted potatoes and got their first log shacks of poplar poles up. Hordes of mosquitoes troubled them, but the wild fruit, wild ducks and beautiful countryside made up in large measure for the hard work and the minor irritations.

Most of the settlers had no idea how cold a Canadian winter could be. Several of them moved into Lloydminster for the winter and tried to live in their canvas tents. The winter proved too much for them, and only those who had built themselves snug well-chinked log cabins with heavy sod and roofs were in shape to survive the snow, the wind and the blizzards.

Mr. Barr, the founder of the colony who had been blamed for many of the misfortunes of the settlers slipped away finally in the face of all the criticism he received. In his place the Reverend Lloyd became the leader. This good man went about from house to house and tent to tent cheering and helping his little flock along. In turn they helped him to build the first Anglican church in the village. This is the origin of the name Lloydminster.

Many of the colonists felt unprepared for the severity of the life they had to face and decided to return home. For others this was not possible, as funds were not available for the return voyage and pride forbade their giving in. Finally the little colony took root and prospered.

In 1905 at the time that the provinces were formed, it was found that Lloydminster was on the boundary. Today it is still astride the boundary line and has been found to be on top of a natural gas field and close to a large oil field. The town's prosperity and busy air—for there is an oil refinery and many businesses connected with the oil and gas—seem to bear little connection with the pioneer beginnings. Perhaps this is true of most of the towns of Alberta. The story of the efforts of the early pioneers should not be lost in viewing the bustling present and the apparently rosy future.

The Ukrainian Immigrants

Chekhov, the descendant of a Ukrainian serf, once said about the Ukrainians:

"These people have learned not from books but in the fields, in the woods, on the river bank. Their teachers have been the birds themselves when they sang to them, the sun when it left a glow of crimson behind it at setting, the very trees and wild herbs."

The vigor of the Cossack's art, the beauty of Tchaikovsky's melodies and the rhythm of Chekhov's words all derive to a greater or lesser degree from the Ukraine. Canada, and in particular, Alberta, has benefited culturally from the people who came to us from the Ukraine.

But the "men in sheepskin coats" as they are sometimes called made their first contribution as homesteaders who were brought in to open up the West. They were known to be people who for generations had tilled the soil, who loved their land, who delighted in growing things and who would be happy to have an opportunity in a new country to obtain more than they had in the old.

The first Ukrainian farm land title in Canada was given to Fedko Faugger of Rabbit Hill, Alberta, who bought a farm there. Word drifted into the Ukraine about 1890 that it was possible to obtain new land in Canada where the government was opening up the prairies for settlement. Scouts who represented villages of interested Ukrainians came to Canada to see if the tales were true. The first two such men were Vasyl Elniak and Ivan Pylypiv. In 1891 they reached Winnipeg and were persuaded to go on to Alberta on the suggestion of a man who said; "Why do you not go on to Alberta? It's warmer in Alberta. You will find fertile soil and woods and plenty of water." Thus it was that eventually in 1894 nine families settled near Star, Alberta, a few miles west of Bruderheim, although immigration on a large scale did not commence until 1897.

This wave of immigration corresponded with the period of railway construction in the West. When the first immigrants came, the Canadian Northern and the Grand Trunk Pacific were laying steel across the prairies and the line from Calgary to Edmonton was being built. The immigrants took homesteads, left their women and the young boys to start clearing land and worked for the railway for some ready cash. Between the years 1896 and 1914 one hundred and seventy thousand Ukrainians came to Canada asking for nothing more than free land and the chance to work.

These immigrants came in great train loads wearing sheep-skin coats, big boots and the women wore shawls over ankle-length skirts. Out on the farms a patch of land was cleared for a house and a rough shelter was made by putting poles together in the shape of a teepee and mudding them. An outside bake oven was constructed immediately in a mound shape with clay walls which were heated by a fire inside and when the walls were hot the coals were taken out and the bread placed inside. The wells also were of old country design with a great handle on which the bucket hung and a cart wheel on the other end. A quern was used to grind the wheat for the heavy black flour. The permanent home was very cleverly built of poplar logs off the homestead, notched and fitted, with rafters of smaller logs and a roof thatched with straw. The walls inside and out were plastered with clay and the whole whitewashed.

After a summer on the railroad the settler would return home with about forty dollars with which he bought a horse, a plough or perhaps a democrat. The ability to survive on a very little helped them. They learned to pick wild mushrooms to vary their diet and as soon as the husband could buy a gun, wild ducks and deer added to the meat supply. The feathers were hoarded for feather beds. Rabbits were killed for food and the skins used to make leggings, caps and jackets. They trapped and sold muskrat skins for shoes and necessary equipment, and cut cordwood in the winter to sell in town or made ties for the railway.

In all this the Ukrainian farmer in Western Canada had little time for a display of his love of art and music. At Easter time the women decorated Easter eggs and brought out the embroidered costumes from their homeland. In the railway gangs after a day's work the musicians among them sang the folk songs of home and occasionally one or two less tired than the rest, inspired by a tune on the pipes or the mouth organ, would dance the greatest of all Ukrainian dances, the Cossack war dance.

The first wave of immigration came as a result of over-population, economic conditions, political and social oppression. At the time of this wave of immigration the Ukraine was under the domination of Austria. Many of these early people were illiterate and they first learned to read and write when their children went to school to learn English. After World War I there were a large number of political refugees from the revolution. Many of these were from the towns and cities of the Ukraine and were quite well educated. The third wave after 1946 were displaced persons and political refugees from Russian communism and many of them were highly trained doctors, lawyers, engineers, dancers and musicians. Many of these have become leaders among their people although it is to be noted that the grandsons of the original groups form a well educated, well informed part of our Canadian population with the percentage of those having university training quite comparable to any other European group who have come to Canada.

It is rather interesting to note that in 1842 a farmer, David Fife, in Ontario wrote to a friend in Scotland to obtain for him some new wheat for seed. At the time a ship from Scotland was in port at Glasgow with wheat from Poland. The friend sent Fife a supply of this wheat which proved to be a disappointment. It was winter wheat which failed to mature. However, in the field was one plant of wheat which was different. It had five heads, two of which a wandering cow ate before Mrs. Fife chased her away. From the remaining three heads which were carefully saved came Red Fife. This proved to be a better quality and earlier maturing wheat than we had previously had. It was later proved that this was the same wheat grown in Galicia, a province of the Ukraine. Thus before the

Galicians reached Canada their wheat had arrived ahead of them. From Red Fife the famous Marquis, a cross between Red Fife and a variety from India, Hard Red Calcutta was produced by the Canadian scientist Dr. Charles Saunders. Marquis is earlier than Red Fife. It was the wheat which was used to open up the prairies. Although newer varieties have been produced Marquis is the standard for good milling and baking qualities for hard spring wheat in Canada.

The Assimilation of Immigrants

Canada is a land of immigrants. People of almost every nationality, with their own languages, religions, customs and traditions have made this country their home. In Alberta, as elsewhere, the process of assimilating the various ethnic groups has not been an easy one, and as yet it is by no means complete.

When the west was first opened up many homesteaders came to the Prairie Provinces: the distances between the holdings and the lack of adequate transportation meant near isolation for many families: there was also the great barrier of the lack of a common language to be overcome. As communications and methods of transportation improved and as the urban population grew, the barrier of isolation was removed. The schools taught a common language and the pupils were encouraged to cooperate with children of other nationalities and to be tolerant. The radio and the church, the press and films all helped in the process of assimilation.

As well as the good qualities and traditions which the settlers brought with them and which naturally should be retained, they also brought with them their age-old racial prejudices which cannot be eliminated in a short time. New settlers, often for a feeling of security when coming to a strange land, have tended to live near people of the same race and these group settlements have slowed down the process of assimilation.

The situation is constant, for as soon as one new generation grows up as "young Canadians", further waves of immigrants have to be absorbed and the same old problems have to be met over again.

The matter is one that demands the attention of us all.

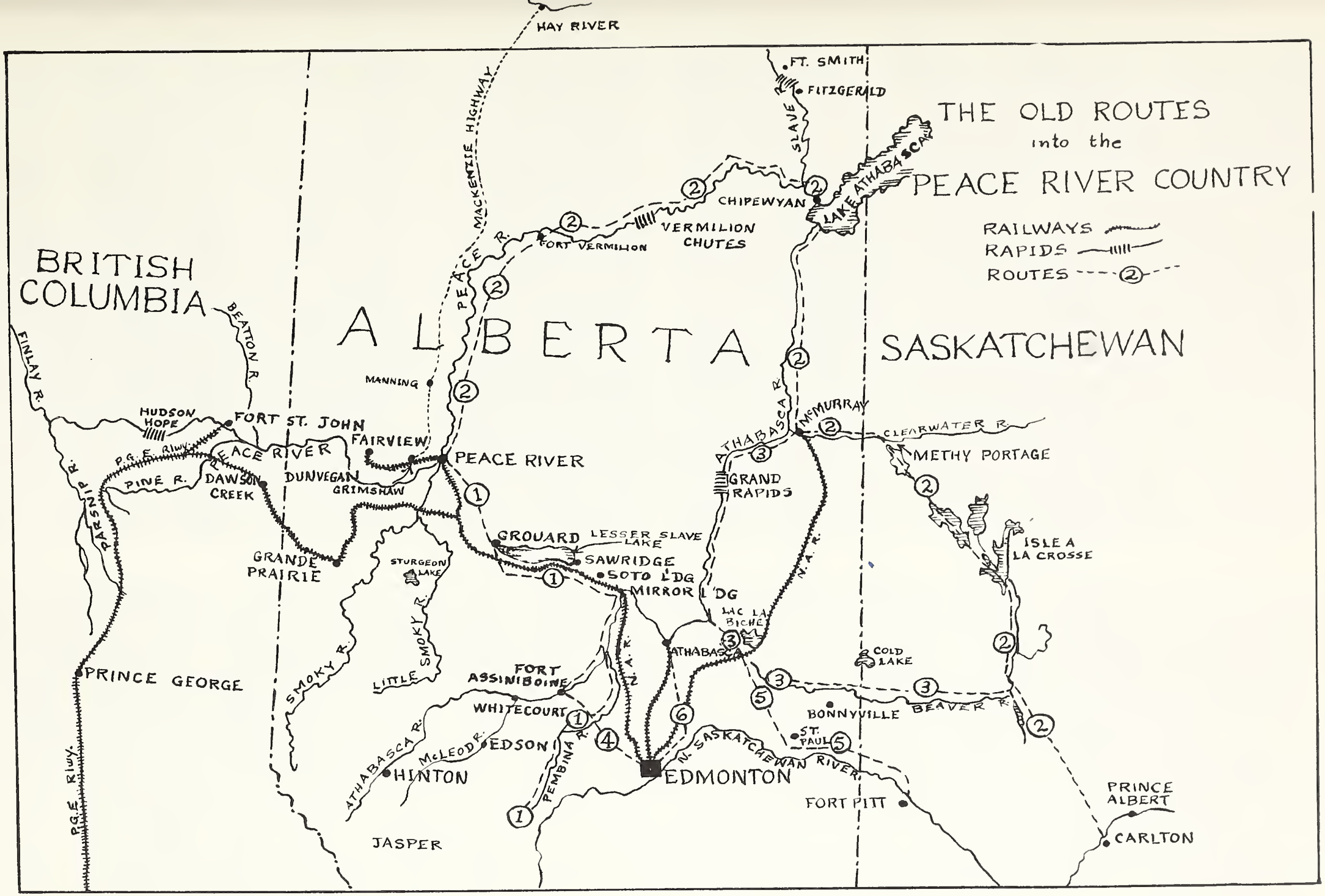
Some Immigration Figures for 1950 and 1957

Ethnic Origin	Alberta 1950	Canada 1950	Alberta 1957	Canada 1957
British	797	13,427	6,628	112,828
Danish	213	905	1,767	7,790
German and Austrian	1,137	5,825	3,258	31,857
Hungarian	148	1,577	3,300	29,825
Netherlander	1,036	7,404	1,708	12,310
Ukrainian	674	3,769	590	5,725
From the U.S.A.	589	7,799	1,522	11,008
Others	1,831	33,206	2,358	70,821
Total	6,425	73,912	21,131	282,164

In 1957 the immigrants living in Canada were 2.8 million, an addition of 750,000 over 1951. This number represents seventeen percent of the total population, thus one Canadian resident out of six was born outside Canada.

The October 1956 uprising in Hungary and the events that lead to the blocking of the Suez Canal in the final months of the same year contributed greatly to the increased flow of immigrants from the United Kingdom and Central European countries during 1957. Immigration from the United States was the largest recorded since 1946. Of the total number of immigrants thirteen percent came to the Prairie Provinces in 1957 as compared with forty-one percent thirty years ago. During the last few years immigrants have shown a growing tendency to settle in the most industrialized areas of the country rather than come to farm lands.

Of the 1,669,340 persons who entered Canada for prospective settlement from 1946 to 1957, 531,852 from overseas were of British origin, 229,663 were German or Austrian, 194,405 were Italian, 135,043 were Netherlander and 32,729 were of French origin, while 111,537 were former residents of the United States.



OLD ROUTES INTO THE PEACE RIVER COUNTRY

1. Down the Pembina River to Mirror Landing, on to Grouard and the Peace
2. Methy Portage route from the prairies near Fort Carlton via Isle a la Crosse to Fort McMurray, then down the Athabasca River to Lake Athabasca and from there down the Peace
3. Up the Beaver River past modern Bonnyville and St. Paul to Lac La Biche, and from there down the Lac La Biche River to the Athabasca. Then either down the Athabasca to Fort McMurray to rejoin Route 2, or up the Athabasca to join Route I at the mouth of Lesser Slave River
4. From Fort Edmonton to Fort Assiniboine (not until 1825 when Sir George Simpson had the road cut). Down the Athabasca from Fort Assiniboine to the mouth of Lesser Slave River to join Route I. This was the main approach until 1883 when a road was cut through to Athabasca Landing
5. From Fort Pitt past modern St. Paul to Lac La Biche to join Route 3
6. The Athabasca Trail: by road as far as Athabasca Landing, then by steamboat "Midnight Sun" to Mirror Landing. Portage of sixteen miles over wagon road to Norris' Landing. From there side-wheeler "Northern Light" went for a hundred miles to Shaw's Point on west end of Lesser Slave Lake and sometimes as far as Grouard. Then a wagon trip of ninety miles lay ahead before Peace River Landing was reached. From Edmonton to Peace River Landing took about two weeks

Courtesy J. G. MacGregor

THE PEACE RIVER COUNTRY

There are no set boundaries to the Peace River country, which lies between the eastern slope of the Rockies and the Alberta and Yukon borders, and it has been said by some to include as much as sixty million acres, and by others only sixteen million acres. Whatever the figure there is no doubt that the land is one of untold wealth, with its vast areas of forest, of arable farm land and of natural resources. The district takes its name from the mighty river that drains it, the Peace, which was the name given to it by the Indians after the Cree and Beaver Indians made peace there after years of fighting.

A wide strip of sub-marginal land, which has since been reserved for forest, lying between the Edmonton prairies and those of the Peace River country delayed settlement of the area. This band of unfertile soil with its forests, muskeg and mosquitoes was a barrier to settlers at a time when there were no roads, railways or planes entering the country, but it was not a barrier to the fur traders who were in fact attracted there as it teemed with wild life. Whilst the Hudson's Bay Company had a monopoly of the fur trade it was not necessary for them to build trading posts all over the interior of the country, as some Indians even from as far away as the Peace and Athabasca Rivers would make an annual trip to Hudson Bay to trade their furs for the useful things the white man had to offer in exchange. But such a monopoly could not last forever and it was inevitable that the rich hunting grounds of the Cree, Beaver and Chipewyan should attract attention. Thus it was that in 1778 the partners who were later to form the North West Company sent Peter Pond up to the Athabasca to establish a post there. This was the first move made by the partners to obtain the furs from the Peace River district which was beyond the limits of the lawful Hudson's Bay Company territory. Until then their most westerly trading post had been at Isle à la Crosse, and it was from here that Pond had travelled to the Athabasca by way of the Methy Portage. In 1787 when the North West Company was formed Sir Alexander MacKenzie took over Pond's post and spent the winter there. Later the post was moved to Fort Chipewyan on the southern shore of Lake Athabasca and from there MacKenzie supervised the fur trade of the area. Many famous men who combined fur trading and exploring passed through the Peace River area at this time, amongst them Fraser and Thompson.

By this time the Hudson's Bay Company was anxious to obtain a foothold in the district and to oust its rivals, the North West Company. In 1799 Fidler was sent there to try and get some of the trade, but after trying unsuccessfully, the Hudson's Bay Company left the Peace River country until 1815. This time they came with a determination to stay there, and for five years there was a bitter struggle between the two great companies, a struggle which was eventually to be won by the Hudson's Bay Company. In 1821 the two joined forces under the admirable leadership of Sir George Simpson.

Now that there was no further rivalry between the companies many of the smaller forts were abandoned. The history of the early fur trading posts is an interesting one: some which once flourished have disappeared without a trace, some such as Edmonton have developed into big cities, and some have dwindled almost to nothing. Among the latter is Dunvegan. Dunvegan was built in 1805-6 by a MacLeod of Skye for the North West Company, and for over a hundred years was the center of the Peace River fur trade. In 1806 forty-five men were employed there, as well as the officers and the Indians. Until 1818 it had no opposition and flourished as a trading center, but in that year the Hudson's Bay Company built St. Mary's House at the Forks. After the union of the two companies in 1821 St. Mary's House was abandoned, and Dunvegan became the headquarters once more. As a punitive measure against the Indians who had murdered Guy Hughes, the trader, and his voyageurs at Fort St. John (near the modern town of the same name) it was decided that all the forts on the Peace River upstream from Fort Vermilion should be closed, and thus it was that Dunvegan was not occupied from 1825 to 1828. Many Beaver Indians in the area starved to death as a result, and the Company suffered too. Not only did it not get its usual return of furs from the district, but also missed the supply of pemmican from the Peace River prairies upon which it had come to rely for its northern posts.

So Dunvegan was re-opened in 1828, and time went by as in all trading posts, with some good years and some bad. The supply of buffalo dwindled and the fort had to rely on its gardens, grain fields and the domestic cattle that could be raised. In about 1880 it was decided to move the headquarters to the Lesser Slave Lake district, where fish could be obtained, and trails began to radiate from there instead of from Dunvegan which had been the center of trade for so long.

However, in 1909 a ferry was started at Dunvegan to meet the demands of the incoming settlers, and wagon trails fanned out from Dunvegan to Fort St. John, Peace River Crossing, Spirit River and Grande Prairie. In 1912 a telegraph line reached Dunvegan from Peace River, and isolation was now a thing of the past. In 1913 the Edmonton, Dunvegan and British Columbia Railway was begun and the real estate offices started to sell lots in "Dunvegan City". The telegraph office became known as the "Government Buildings" and lots in this section of the future metropolis sold for ridiculous sums of money. People from many countries bought there, but no one ever built on the lots and for those who made the long journey to see their property there was nothing but disappointment.

The railway never reached Dunvegan and it was obvious that the old trading post would never develop into a town. All that remained were the old fort, the Roman Catholic church, built by Grouard, and the ferryman's house. Now even the ferry will soon cease to run as a new bridge is being built and should be completed by 1960. The church was abandoned in 1905, and efforts are now being made by the Historic Sites board to restore it. Dunvegan, the "Metropolis of the Peace River District" of the real estate offices, is a thing of the past.

The fur traders and explorers were the first white people to venture into the Peace River country. In the middle of the nineteenth century, the 1860's and 70's, the gold miners arrived in great numbers to seek riches in the earth. Some of them did make a fortune more or less overnight, but the majority made only about five dollars a day. Many moved on, unable to resist the lure of gold elsewhere, but many settled in what is now Alberta and were among the first of the pioneers. It was a colorful period in the history of the Peace River district with adventurers from many lands working the mountain streams, a period as colorful as many of the names of the men themselves — 12-Foot Davis, Banjo Mike and Nigger Dan.

The gold diggers had come to take what they could, and it was a very different group of men who next came to the district in the members of the churches who came to bring religion to the Indians. With no thought of material gain they worked under the most difficult of conditions and no praise can be too great for them. Many journeyed thousands of miles in a year, seeking out the Indians in their camps, travelled on the ice in sub-zero temperatures, slept out in the snow, went enormous distances by canoe in summer, battling against flies and mosquitoes, and often came near to starvation, because of poor food supplies. It was a lonely and exacting life. Of the illustrious Peace River missionaries, amongst them Rundle, Garrioch, Brick, Bompas, Clut, Grouard, Young and countless others, it is difficult to single out any one man but perhaps the most famous of them all was Father Grouard, the priest with the red beard who for almost seventy years ministered to the Indians and Eskimos, learned their languages and made long dangerous journeys without a thought for his own safety. The Indians called him "The praying-one-his-chin-hair much-of-it". He introduced the first printing press into the Peace River District and in 1863 had one of the earliest steamboats, the St. Joseph, built in the region. He died at the Lesser Slave Lake settlement in 1931, and it has since been renamed in his honour.

During the Klondike gold rush, at its peak in 1897-98, many gold seekers again passed through the Peace River country on their way to the Yukon overland, although the majority went by way of the coastal route and into the Yukon by way of Skagway. Some two thousand of them left Edmonton to go overland: some by the old trail to Athabasca Landing and from there down to the MacKenzie, to Fort McPherson, up the Peel River and finally down the Klondike. Others went to the end of Lesser Slave Lake, then portaged seventy-five miles to the Peace which they ascended as far as Fort St. John. Yet others went from Edmonton to Fort Assiniboine, north to the Driftpile River and thus to the west end of Lesser Slave Lake. Few of the two thousand who left Edmonton, full of hope, ever reached the Klondike two thousand miles away and many of them did not even get as far as the Peace. It has been estimated that about two percent of them got through, many turned back, some died of starvation and some drowned in the rapids. Many of those who turned back stayed on in Edmonton, which at that time had a population of about two thousand and others settled in the Peace River district.

At this time the land still belonged to the Indians as no treaty had yet been signed. Many of the Klondikers were lawless characters and they had caused a considerable amount of bad feeling with the Beaver Indians. It was therefore decided that it was time to conclude a treaty, so in 1899 the Indians ceded 324,900 square miles to the Crown under Treaty Number 8.

In 1893 the railway reached Edmonton and this became the obvious place of entry into the Peace River District. Even before the coming of the railway Edmonton had been a central although comparatively small settlement, with trails coming in from Winnipeg and Calgary and one going on to Jasper and the coast. The old Indian trail, made over the shortest distance between the Athabasca and Saskatchewan Rivers, had been developed by the fur traders and in 1883 a new trail was cut for freight and settlers. By 1897 there was a cart trail, and this was known as the Athabasca trail. After the railway reached Edmonton the trail was used more and more by settlers who were usually heading for Athabasca Landing where a steamboat had been built in 1887, thus providing a means of transportation within the area. In about 1893 a stage coach started going up and down the Athabasca trail and stopping places and stables were put up at intervals.

Until 1905 when the provinces of Alberta and Saskatchewan were created, what is now Alberta was split up into Athabasca and Alberta and the Athabasca River was the border between the two. The Peace River country was part of the area called Athabasca. Athabasca was still Indian territory until the signing of the treaty in 1899 and it was illegal to take liquor into the country except under permit for consumption by white men. So the Athabasca trail saw many a scuffle between the Mounties and the bootleggers who were trying to smuggle liquor into the area. In 1893 men of the N.W.M.P. were stationed at Athabasca Landing and others at Grand Rapids and Lesser Slave Lake. The work of the police over this district was of course rigorous as they had to cope not only with the climate but with Indians who were sometimes starving, and even with some who turned cannibal and with the lawless men who were left behind after the Klondike rush.

Transportation within the Peace River area with its vast stretches of navigable waterways was greatly improved by the use of steamboats. The first of these the "Grahame" was built at McMurray in 1883 for the Hudson's Bay Company and for many years after this time the boats were plying a regular trade up and down the great rivers. The boats were built during the winter at Athabasca Landing, Peace River Landing and McMurray. The building itself was an enormous task, and the boilers had to be hauled from Edmonton as far as Athabasca Landing, and from there floated down to McMurray by scow and hauled over the portage as far as Fort Smith. Often the boilers were hauled over the ice of the Athabasca as far as Peace River Landing. The Athabasca River is navigable by steamer from Mirror Landing to Grand Rapids, but is very rough from Grand Rapids to McMurray. From McMurray the steamers went down to the mouth of the river in Lake Athabasca. From McMurray steamers can also go down the Slave River as far as the rapids at Fitzgerald one hundred miles away. Beyond these rapids other steamers go as far as Great Slave Lake and on down the MacKenzie as far as the Arctic. The steamer from McMurray to Fitzgerald can go up the Peace as far as Vermilion Chutes which are one hundred and seventy-five miles away, and beyond the portage there, the mighty Peace is navigable for another five hundred and twenty-five miles as far as Hudson Hope. From Mirror Landing the boats could go up the Lesser Slave River as far as Grouard on Lesser Slave Lake. In the early days freight which was to go down the MacKenzie was brought in by the Methy Portage route which reached the Athabasca at McMurray, but after the C.P.R. reached Calgary in 1883 goods came in via Calgary, Edmonton and Athabasca Landing. In 1912 the C.N.R. reached Athabasca Landing and in 1916 the Edmonton, Dunvegan and British Columbia railway reached Peace River Landing, so bigger boats were built there, rather than at McMurray.

With the coming of newer methods of transportation in later years the steamboats gradually fell into disuse.

After the treaty had been signed work began on subdividing the country into sections and townships, and more settlers poured into the district. Lesser Slave Lake settlement, now called Grouard, was the focal point of the district, and in 1914 it could boast twenty-two stores and a newspaper.

In 1911 the Grand Trunk Pacific Railway reached Edson and from there to Grande Prairie as the crow flies it is only one hundred and fifty miles. Thousands of people went into the country by the Edson trail and those that took the route will never forget their journey. It turned out to be two hundred and fifty walking miles, and sometimes the trip took as much as three months. Mud, muskeg and mosquitoes were the order of the day: wagons had to be loaded or partially unloaded up hills and in muskeg, and many valued possessions had to be abandoned by the side of the trail: many horses died on the way and frequent rests were necessary especially for the women and children. The trail fell into disuse when the railway reached Grande Prairie in 1916.

Settlers continued to go into the Peace River country and in the early thirties the bad drought in the prairies made many farmers want to leave their original holdings, so the Government made available in the Peace River country land for second rights preemption. This meant that the affected farmers could re-establish themselves by cancelling their original holdings. Some went to the Peace River District from southern Alberta but the majority came from Saskatchewan, travelling by wagon with all their worldly goods often two thousand miles in a journey taking from three to four months. Much of the available land was far away from highways and railways, so the forests had to be cleared and it was a long time before the settlers' ground could produce much food. When the smallholdings eventually started producing, the market was glutted as there was practically no sales outlet. In 1933 eggs sold for 4¢ a dozen. Wells had to be dug for water and the mud was abominable. The wild autumn berries and wild game provided a welcome addition to the food supply. Over all hovered the promise of the railway; the people of the Peace River district had waited hopefully for railways which were always promised but which never seemed to materialize and which were necessary to provide the required outlets. These new settlers of the thirties give us a good picture of the modern pioneer.

Settlers were originally attracted to the Peace River District because of the richness of the soil and they have not been disappointed as the area is a rich agricultural one. At the 1956 census roughly half the population was living on farms, as compared with about thirty percent in the rest of the province of Alberta. Earlier maturing cereal varieties, such as Garnet, Reward, Saunders and Thatcher, have overcome the climatic difficulties. The shorter number of frost free days is offset to some degree by longer hours of sunlight in the summer. A scientific study of soils etc. developed the right things to grow for that area. The Beaverlodge Experimental Farm was started by W. D. Albright, who moved into the district in 1913, and eventually received aid from the government. Trelle of Wembley in the Peace River country won the first prize at the Chicago World Fair for three years running for the world's best wheat. The wheat surplus has gradually encouraged the shift to mixed farming. Three-fifths of the area's farm income comes from field crops, wheat, oats, barley and hay, and two-fifths from livestock, beef, dairy cattle and hogs. The great distance from markets has made crops with a high relation to bulk very desirable, and a lot of flax seed and forage seeds are produced. The Peace River area has become one of the main forage seed areas on the continent as the grey-wooded soils are well suited to this type of production.

Of great potential value are the forests of the Peace River district where it is estimated that there are from thirty to forty million acres of productive forest land. This means from two hundred to two hundred and fifty billion board feet of material suitable for saw timber and 400,000,000 cords of smaller material. High transportation costs present a difficult object to overcome: some of the roads built into new areas for oil exploration can be used for

One of Alberta's most magnificent vistas. Looking southwest over Peace River; junction of Peace and Smoky Rivers in the distance

Original Upper Hay River Post built on a bend of the river now ¼ mile off MacKenzie Highway logging, and the Alaska and MacKenzie Highways provide a limited outlet.

The boom in Alberta that followed the Leduc discovery of oil was slow to penetrate into the Peace River district. While production from the Alberta fields is limited, it is rather pointless to spend vast amounts of money drilling in remote areas, as in the Peace River block. The cost of exploration is often doubly expensive as muskeg demands winter drilling. In 1955, however, a pipeline was built to take oil from the two Sturgeon Lake fields to join the Edmonton-Vancouver line near Edson. Two refineries are now working, one at Grande Prairie and one at Dawson Creek. The demand for natural gas in the area is increasing. In 1952 a permit was granted for the export of gas to British Columbia, and in the early fifties too a line was built to supply Dawson Creek with natural gas from the Pouce Coupe field. The Whitelaw field supplies Grimshaw and Fairview, and the Rycroft field Spirit River and Grande Prairie.

There are also large resources of coal, silica sand, limestone and iron-bearing material in the Peace River country.

Although costs of transportation from the Peace River district are still high because of the distances involved, the necessary outlets have gradually been provided. The railway from Edmonton reached High Prairie in 1914, Peace River in 1915 and Grande Prairie in 1916. In 1948 the MacKenzie Highway was completed, and in 1952 the John Hart Highway crossed the Rockies through Pine Pass and gave an outlet to the coast.

Until the Hart Highway was built in 1952 from Prince George to Dawson Creek, the Peace River block was almost sealed off from the rest of British Columbia and rail shipments to the coast had to go via Northern Alberta Railways to Edmonton and then back west.

The Pacific Great Eastern Railway was originally intended to link Vancouver with the Cariboo country and with the Grand Trunk Railway which had just come through at Prince George. This was in 1912. Actually only one hundred and seventy-eight miles of track between Squamish and Clinton were laid, and in 1918 the company went bankrupt. The Government took over and went on as far as Quesnel, but for more than thirty years there was no link with Vancouver. The trip from Vancouver to Squamish forty miles away involved a four hour steamer trip up Howe Sound. From the time the private company gave up, the railway became a financial nightmare, running up a debt of five million dollars a year, and not once even earning the interest. The original estimated cost of twenty million dollars rose to a debt of one hundred and fifty-two million dollars, which was three-quarters of the entire provincial debt of British Columbia. In 1953 the provincial government wrote off ninety-three million in interest it owed itself and issued bonds for the remaining sum, and by 1956 the railway had shown a profit of just over one million dollars. In 1952 the section from Prince George to Quesnel was completed and in 1956 there was an inaugural run from Vancouver to Prince George and by 1958 the railway had gone another 265 miles north. Known by a variety of names—Please Go Easy; Province's Greatest Expense; Prince George Eventually; Patience, Guts and Endurance; Puff, Grunt and Expire, the Pacific Great Eastern is now fulfilling its original purpose, that of providing an outlet for the Peace River Block to the coast.

The dream of many a pioneer had come true with the completion of this railway. Now the Peace River area has an all-weather highway out through the Pine Pass and also a railway providing a coast outlet.

It is now possible to fly from Edmonton to Grande Prairie and to Peace River in less than two hours. Modern methods of transportation have changed everything in the Peace River area, the last large area of Canada to be settled by the white man.

Growth of Papulation in Peace River Country

	Alberta	B.C.	Total
1921	18,539	1,694	20,233
1941	47,833	7,929	55,762
1956	61,380	18,332	79,712

TWELVE FOOT DAVIS

High above the Peace near its junction with the Smoky stands the grave of Twelve Foot Davis. It is an apt resting place for that almost legendary figure of the Peace River country.

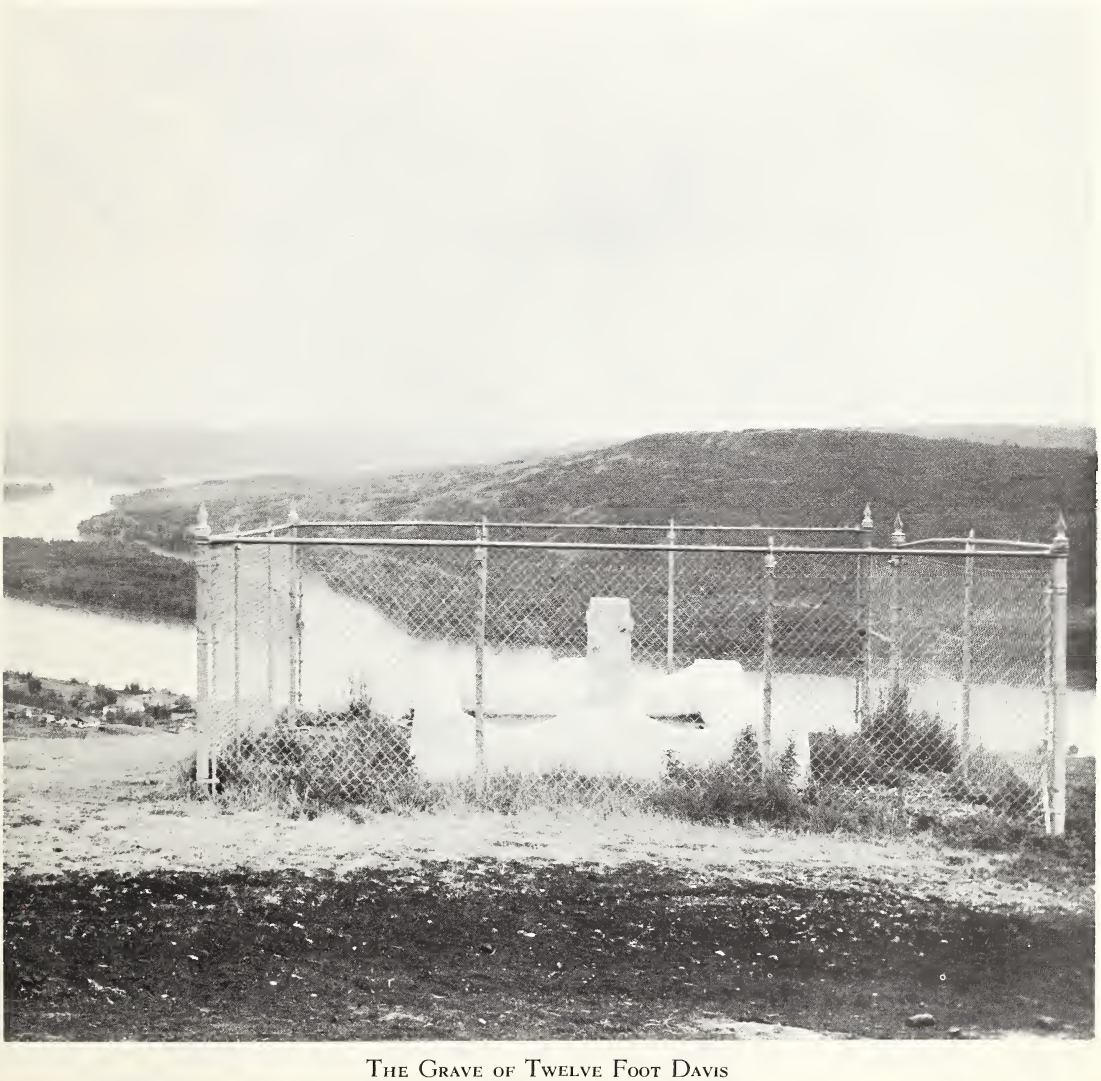
Henry Fuller Davis, who was born in Vermont about 1820, came to the Cariboo gold fields when he was twenty-nine years old. This adventurous young man who had previously gone to California in the gold rush had been lured further north by the thought of more gold. His nickname originated from a strip of land twelve feet wide that had inadvertently been left unclaimed by the people mining on either side of it. From this strip of land it has been said that Davis took gold worth twelve thousand dollars, and from that time on he was known as Twelve Foot Davis.

From the Cariboo gold field he moved on to Omineca diggings where he was amongst the first men to mine. However, Davis soon converted his newly acquired wealth into trade goods and had a chain of posts along the Peace from the canyon to Fort Vermilion. Before the railway reached Calgary in 1883 when Davis was able to bring in his goods from Edmonton, he brought them from Quesnel in British Columbia, overland and by canoe.

Davis became a well known figure in the district. His tombstone bears the inscription, "He was every man's friend and never locked his cabin door". His pumpkin pies were famous and Davis often practised the art he had learned as a pastry cook in Boston. The Indians called him "The Wolf" because of his endurance and strength, for on a portage he would carry two hundred pounds, which was twice as much as he would expect the members of his crew to carry.

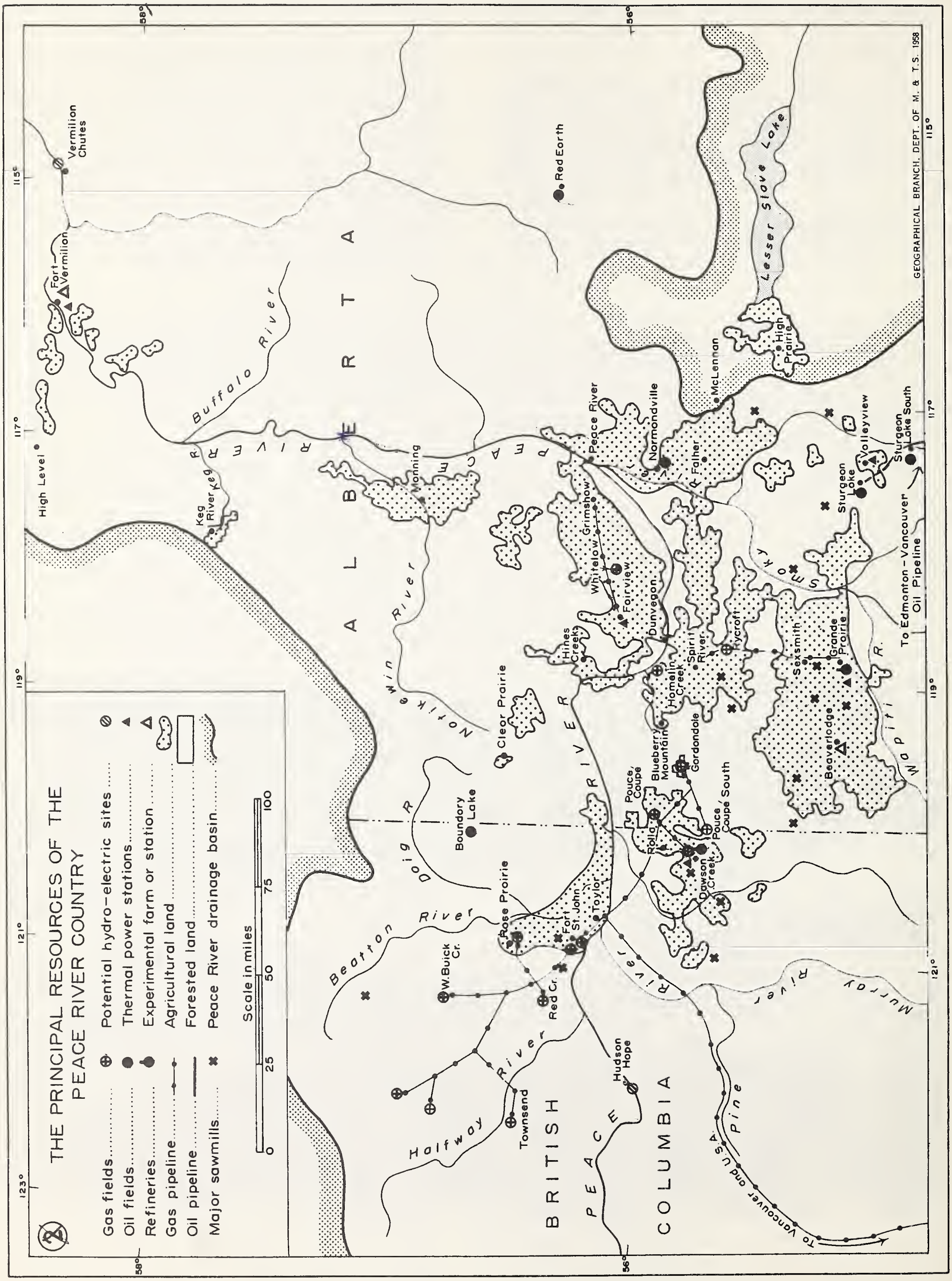
Davis was illiterate and a story is told of how he once received a note from the Hudson's Bay Company, while his companions were absent from the post. Letters were fairly uncommon in the Peace River in those days, and Davis assumed that someone must be ill. Not daring to admit his ignorance to the messenger he sent over two bottles of whisky as a remedy, but it transpired that the note was a message with New Year Greetings and an invitation to supper!

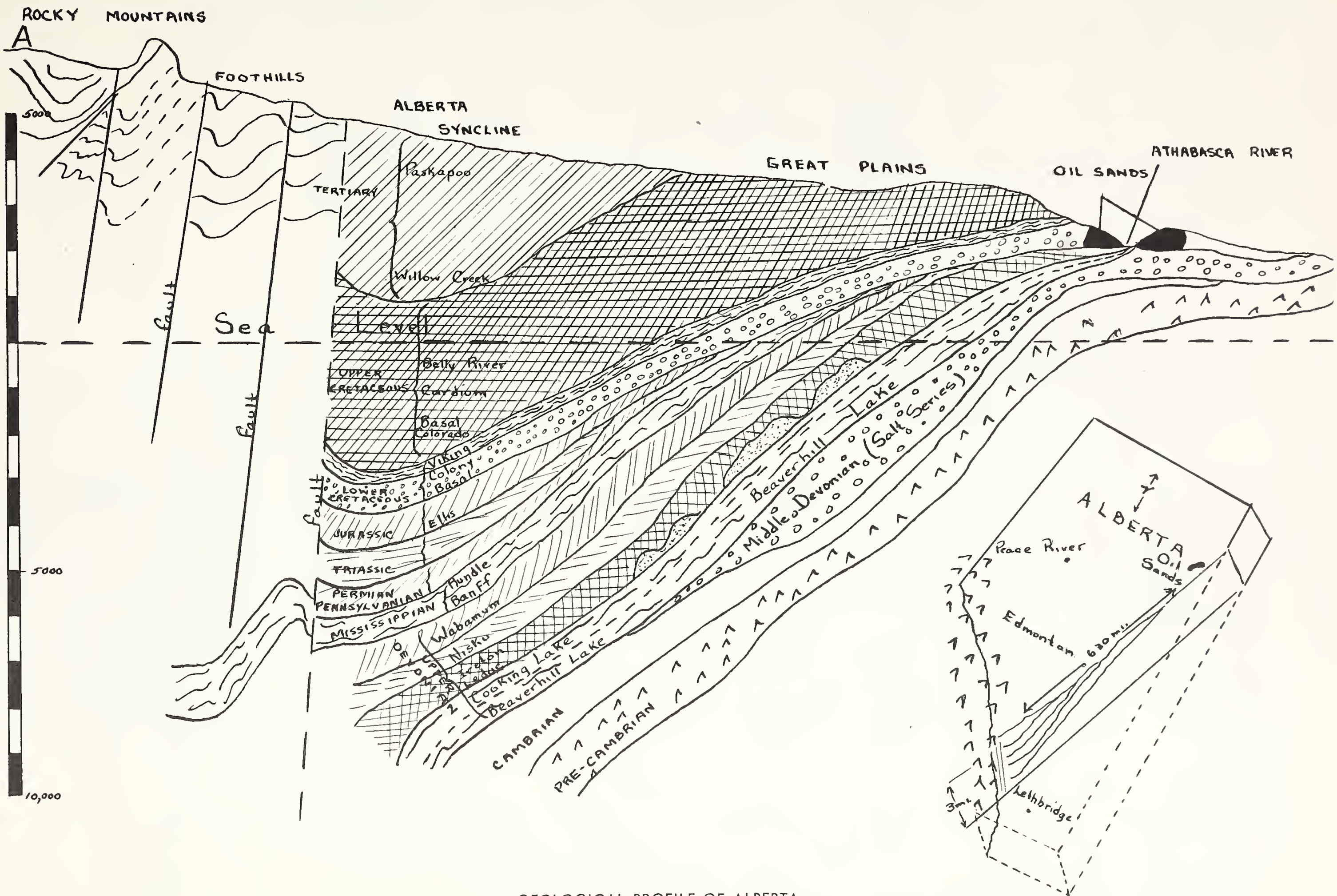
As the years began to tell on him, he became more lined and began to stoop. For the last five years of his life he was totally blind, and his legs were affected too: he had to be carried from the post to the canoe. He was in this condition on his last visit to Edmonton, and on the way back he stopped at the Anglican mission on Buffalo Bay on Lesser Slave Lake and here he died on September 13, 1900. When asked by the Anglican sister at the mission if he was afraid of dying he answered, "No miss, why should I be afraid to die? I never killed nobody, I never stole from nobody, I never wilfully harmed nobody, and I always kept open house for all travellers all my life. No, miss, I ain't afraid to die". Thus he delivered what would have been an apt epitaph.



THE GRAVE OF TWELVE FOOT DAVIS

Inscription: *"He was everyman's friend and never locked his cabin door."*


THE PRINCIPAL RESOURCES OF THE PEACE RIVER COUNTRY
Gas fields
Oil fields
Refineries
Gas pipeline
Oil pipeline
Major sawmills
Potential hydro-electric sites
Thermal power stations
Experimental farm or station
Agricultural land
Forested land
Peace River drainage basin
Scale in miles
0
25
50
75
100
123°
121°
119°
117°
115°
58°
56°
ALBERTA
BRITISH COLUMBIA
High Level
Vermilion Chutes
Fort Vermilion
Buffalo River
Keg River
Keg R.
Red Earth
Lesser Slave Lake
High Prairie
McLennan
Peace River
Normandville
Falher
Manning
Notikewin River
Clear Prairie
Hines Creek
Whitelow
Grimshaw
Fairview
Dunvegan
Spirit River
Rycroft
Homelin Creek
Blueberry Mountain
Gordondale
Pouce Coupe
Pouce Coupe South
Rolla
Dawson Creek
Sexsmith
Grande Prairie
Beaverlodge
Smoky R.
Wapiti R.
Sturgeon Lake
Valleyview
Sturgeon Lake South
To Edmonton-Vancouver Oil Pipeline
Boundary Lake
Doig R.
Beatton River
Rose Prairie
Fort St. John
Taylor
W. Buick Cr.
Red Cr.
Halfway River
Townsend
Hudson Hope
PEACE RIVER
Pine River
Murray River
To Vancouver and U.S.A.
GEOGRAPHICAL BRANCH, DEPT. OF M. & T.S. 1958



GEOLOGICAL PROFILE OF ALBERTA

ALBERTA OIL AND GAS

*GEOLOGY OF ALBERTA

Geologically oil and natural gas are found only in that part of the earth's crust known as sedimentary rocks. These rocks contain both source rock, from which oil and gas are manufactured, and reservoir rock in which they are trapped, and from which they are produced.

The earth was once a molten mass completely surrounded by flame and burning gas. Nature permitted it to find its position in its present orbit, and the slow process of cooling began and continued. Gases became vapor, vapor became clouds, clouds became rain which fell on the earth. Steaming masses produced more rain and the process was repeated until we had a period when there were torrential rains. The crust of this molten mass hardened until it became the granites or base rock. Rains continued and stream lines were formed, which of course ran to the depressions caused by the normal and natural wrinkling of the surface of the earth and became the original seas. Seasonal changes of heat and cold started to disintegrate the rock on the surface of the earth. The rains and stream lines carried this rock, which became boulders, then gravel, then sand, from its original placement and deposited it where the force of water would no longer carry it.

Vegetation and one-cell animal life appeared. Vegetation and its residue washed down the stream lines into the shallow waters of the bays. Animal life grew in tremendous volumes, lived out its cycle of life, and dropped into these waters. The combination of all of these, together with the minerals that were carried to the quieter parts of the seas in solution and then dropped to form limestone, became sedimentary rocks.

It has been shown that shifting of weight will cause buckling of the earth's crust. It can readily be seen that millions of tons of deposition being moved from high lands and deposited on ocean shores shifted the weight, and quite naturally wrinkling or folding took place to compensate for this factor, and we have the growth of mountains and the subsequent growth of folding or structure. The sedimentary rocks spoken of before, trapping within themselves the richness of vegetation and animal life, became source rock.

Heat and pressure, acting over a period of millions of years, compressed beach sands into sandstone, clays into shale and lime deposits into limestone. The limestones and sandstones, once folded, became trap rock, and the manufacture and trapping of oil and natural gas became a reality. As the weights of these materials reached a point where the earth's crust began to buckle, folding and faulting occurred. Seas advanced and retreated. The sedimentary rocks formed were named from the ages in which they were formed.

Where the crust of the earth contained weak materials such as thick deposits of sedimentary rocks it broke instead of bending. The place where the rock breaks is called a FAULT, and where one edge of the fault is forced over another we call it an OVERTHRUST. If a fold turns upward like an arch it is called an ANTICLINE; if it turns downward forming a trough it is called a SYNCLINE. Some large synclines perhaps hundreds of miles across have been formed when pressure from great mountain ranges have bent them down. These are called GEOSYNCLINES. Alberta has a syncline or a geosyncline. Caught in the Alberta trough are the gas and oil formed during the ages.

The following outline of the earth's history may help in an understanding of the rock formation and the periods in which oil and gas were formed.

Archeozoic Era:	Began two billion years ago. Lasted five hundred million years. Earth cooled. Crust formed. Beginnings of life.
Proterozoic Era:	Began twelve hundred million years ago. Lasted seven hundred million years. Primitive plants and animals lived on the earth. Shell animals, worms and other forms of life existed. Limestone formed. Huge intrusions of rock were brought to the surface. Mineral wealth, particularly iron, copper, gold, silver, nickel and radium was forced up into the earth's crust.
Paleozoic Era:	Began four hundred and ninety million years ago. Lasted three hundred million years. It is subdivided into the following periods:
(1) Cambrian	Much of the earth was submerged and the seas contained shell-bearing creatures which formed fossils readily. Evidence of land life.
(2) Ordovician and Silurian	These periods are similar. Corals appear. Water scorpions, also some land scorpions. Land plants are suggested. Texas, Ohio and Pennsylvanian oil was formed during this time.
(3) Devonian	Rapid extension of plant life. Scorpion spiders and a few vertebrates (sharks) and some air-breathing fish. These became the land vertebrates. Much Alberta oil formed in this period.
(4) Mississippian and Pennsylvanian	In many parts of the world coal deposits were laid down. Swampy flats and warm humid climate. Tree ferns, amphibians, reptiles. (These periods are also known as the Upper and Lower Carboniferous.)

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*Note: *The technical information included is entirely for the information of the teacher.*

MESOZOIC ERA:	Began one hundred and ninety million years ago. Lasted one hundred and thirty million years.
Triassic Jurassic Cretaceous	Reptiles dominated the earth. Dinosaurs. Flying reptiles. Shallow seas left deposits of chalk. First mammals appeared. Some Alberta gas formed during this period.
CENOZOIC ERA:	This began sixty million years ago. We are still in the era known as Cenozoic. Pressure between the Pacific ocean and the Laurentians caused the squeezing up of the Rocky Mountains. The swamps were drained. Dinosaurs disappeared.
(1) Paleocene	Mountains pushing up. Animals with hair and blood.
(2) Eocene	Early mountains worn down. Clay and sediment in basins. Oldest ancestors of horses appeared at this time.
(3) Oligocene	Volcanoes in the Rockies and the plains. Elephants in Africa.
(4) Miocene	Rocky Mountains formed. Lava plains.
(5) Pliocene	Great volcanic eruptions. Cooler climate.
(6) Pleistocene	Ice formed because of change of climate. Horses spread from continent to continent. Apes appeared toward end of period.
(7) Holocene	Up to present time. Cave-man appeared. Mammoths.

Through all these geological eras the manufacture of sedimentary rocks, carrying within them the raw material that became gas and oil as we know it, has gone on. The rich abundance of oil and gas had to go somewhere when it was forced out of its shale source. It found the first porous substance to infiltrate, which was sand, or porous limestone or reef material. Because of the tremendous volume of animal life that is dropped with and becomes entrapped in limestone, this is also one of the major source rocks, and oil finds its way to the more porous portions of limestone. During all this process, tilting and movement of the earth, together with other causes, created drastic climatic changes. As a consequence, tropical conditions have been present in what is now the Arctic Circle and the Antarctic Circle. The reservoirs of the Redwater, Homeglen-Rimbey and Leduc fields are made up of coral reef material. This means that in warm tropical waters animal growth found these particular spots to be conducive to their type of life cycle, and the shells of these living forms make the reservoirs in these fields.

The force of waters moving through these porous sandstones and limestones, reefs and other traps naturally carried and washed with it particles of oil and gas, and when a structure or fold was reached, oil and gas being lighter than water, found their way to the top of the structure where they have now collected in pools.

Petroleum

Petroleum, derived from the Latin words "petra" meaning rock and "oleum" meaning oil, began to form millions of years ago.

Scientists generally believe that petroleum was formed from plants and animals that existed in prehistoric times in and around the shallow seas that covered most of the earth. From time to time these waters receded and the remains of the plants and animals were covered with sediment; gradually through the ages the sediment hardened into rock. By pressure and possibly aided by the action of bacteria the decaying matter was changed to a liquid and trapped in the porous structures at the top of the domes formed by the buckling and folding of the layers of rock.

Probably before history was recorded man was using petroleum where it seeped through the ground. From the remains of ancient civilizations we can learn that the Sumerians used asphalt to seal the seams of boats as early as 3800 B.C., that petroleum was used on the walls of Babylon and Nineveh about 2000 B.C. and that the early people of Egypt, India, Mesopotamia and China used petroleum for many purposes, including lighting, cooking and for curing various ailments.

THE HISTORY OF ALBERTA OIL AND GAS

Oil has become Canada's leading mineral product and Alberta is the main storehouse for oil as well as other fuels.

The history of how Alberta became conscious of the presence of oil is an interesting one. In 1883 when the C.P.R. was pushing its tracks across the prairies it was necessary to drill for water to supply steam engines. In many parts of the North West Territories known now as Alberta these wells had often to be drilled quite deep, and at Langevin (now Alderson) gas was discovered during one of these drilling operations, and the rig caught fire. In the next year another drilling resulted in an estimated flow of fifty thousand cubic feet of gas per day.

F. G. Clapp of the Dominion Government made this statement about gas at Medicine Hat. "In 1890 a well drilled at Medicine Hat in search of coal encountered a considerable supply of natural gas, the flow being so strong as to lead the town officials to take the matter up with the C.P.R. with the view to drilling a deeper well for gas. Sir William van Horne offered to lend the town a drilling machine, the town to stand the expense of drilling. A considerable flow of gas was encountered at about six hundred and fifty feet with a pressure of two hundred and fifty pounds but it was accompanied by a large amount of moisture. In the hope of obtaining a larger supply free of moisture, deeper wells were drilled and

A Gas Flare

Alberta Gov't Photograph

the present gas pay was developed in a well in 1905 at a depth of over a thousand feet showing a pressure of five hundred pounds."

The early wells did not have a cement casing, and as a result gas often leaked through the porous beds below the surface causing a fire hazard. Gas sometimes accumulated in old buildings causing explosions.

A year or two after the discoveries, Medicine Hat had gas lights on the streets and cheap gas was used as an inducement to industry. At Redcliff, six miles from Medicine Hat, a glass plant was built as well as a steel rolling mill and several brick plants. Today factories turn out brick building tile, pottery, flour and other grain products and there is a large greenhouse business, all largely as a result of cheap fuel.

In Calgary by 1905 natural gas was being used and by August 1911 a sixteen-inch pipeline brought gas to Calgary from Bow Island. Very soon more gas was needed and in 1923 a well was drilled near Foremost which was turned into the main thirty miles away.

Oil Discoveries

Connected with the first petroleum prospecting was a famous character of the southern part of Alberta, John George Brown, or "Kootenay Brown" as he was more often called. Brown was a British army officer who had a high rank in the army in India. He came to Alberta by way of the Cariboo where he had been looking for gold. He passed through to Red River by way of the Waterton Lakes where in 1878 he later came back to homestead. The Waterton Lakes at that time were known as the Kootenay Lakes, and from them Brown took his nickname. While Brown was ranching in the Waterton area the Indians told him of oil seepages on Cameron Creek. He skimmed oil from the creek to use in greasing farm machinery and later a foreman, Aldridge, dug trenches and pots into which the oil seeped and then sold it for one dollar a gallon. In 1899, Aldridge applied for a lease to drill for oil. Before he began in 1902, the Rocky Mountain Development Company began to drill and they struck oil at 1,020 feet. It was said that three hundred barrels a day were being produced, but the tools became stuck and the well caved in. John Lineham, a member of the company, had a pump installed in the well and was soon pumping three hundred barrels a day again. A small home-made refinery was set up and the oil was ready for use.

Today the old well site of Alberta's first well is in the center of Waterton Park. A drill stem protrudes from the ground and nearby is a wooden winch. These are all that remain of Alberta's first oil well on Cameron Creek.

It became necessary for oil drillers to know how they could obtain rights to any oil they might discover. Thus it was that in 1898 an Order-in-Council authorized the reservation of lands in southern Alberta for petroleum prospecting subject to a royalty of 2½% of the sales of oil if found in paying quantities.

Alberta's First Oilwell, Waterton 1902

Alberta Gov't Photograph

The Waterton discovery proved to be too small for commercial production and in 1910 it was decided by Order-in-Council that no royalty would be charged on oil until 1930. In 1930 the Dominion turned the natural resources over to the province, but even at that time there were few leases in existence.

The Dominion government paid bounties for oil produced until 1925 at the rate of about 1½% per imperial gallon. After 1930 a Conservation Board was set up to control the correct development of the natural resources, but this did not start to operate until 1938.

The first royalties collected were at the rate of 5% in 1930, but in 1935 they went up to 10%. Royalties paid to the government were set up on a sliding scale because it was claimed that small companies could not afford to pay the same amount as large ones, and the scale varied from 5% to 15%.

As the consumption of oil products increased, oil discoveries also increased. For instance from 1946 to 1954 demand doubled.

A geological survey of Canada in 1890 reported that the tar sand at Athabasca Landing might be expected to be twelve to fifteen hundred feet deep and contain petroleum, and thus it was that a hole was bored to 1,770 feet before abandonment was necessary. Another hole was drilled at Pelican Rapids on the Athabasca half way between Athabasca Landing and McMurray. At 820 feet gas was struck; the well caught fire and burned uncontrolled for twenty-one years. The presence of the bituminous sands along the Athabasca had a great deal to do with oil exploration in central Alberta, as their presence indicated the likelihood of oil.

Turner Valley

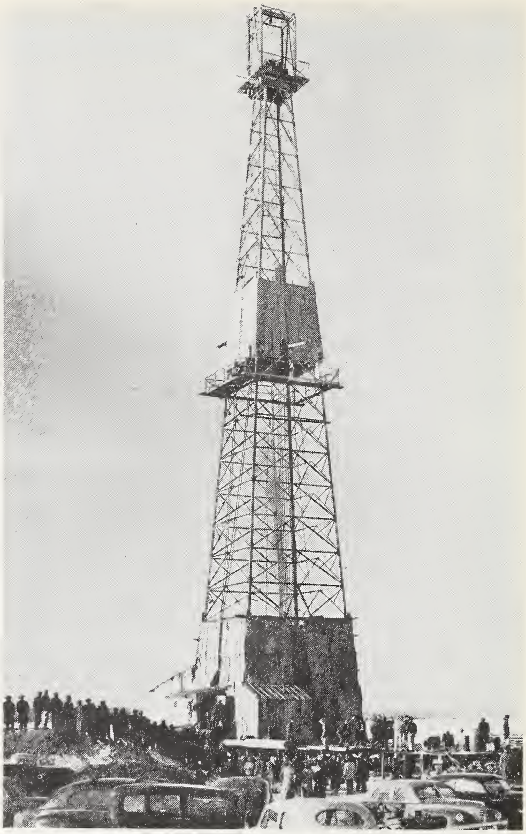
In 1911 a seepage of gas near Black Diamond resulted in well drilling in 1913, but it was 1914 before a well went deep enough to get showings. The gas was full of vapor that would condense to almost pure gasoline and could be used in a motor car without further refining.

As a result an oil boom began in Calgary. During the early years many settlers had noticed gas seepages and it was on the land of a rancher, William Herron that the initial discovery well was drilled. Herron invited two Calgary business men out to the ranch where they fried eggs over a fire lit from the escaping gas. This group of men formed the Calgary Petroleum Company and began to drill the Dingman No. 1 well at Sheep Creek. After weeks of dropping a heavy steel bit into the earth the well blew in. This was in May, 1914. The 2,700 foot well had a tremendous flow of four million cubic feet of wet gas and some light oil per day.

A small refinery was established there but it burned down. To re-finance the plant, funds were received from Imperial Oil. The refinery was rebuilt and the company was called Royalite. A new well, Royalite No. 4, was drilled in 1922 and at 2,890 feet a fair flow of gas was found. Further drilling down to 3,740 feet in 1924 struck a rush of twenty-two million cubic feet per day. The flow was so great that it was difficult to handle and as the gas was dripping with naphtha (now called condensate) it was very volatile and the well caught fire. This fire was hard to control but by the end of 1924 it was out and the well could be brought into action again. The gas was cleaned and turned into the pipeline at Calgary. However, in 1929 the pressure fell off and the well died. From Royalite No. 4 an immense amount of gas had been recovered and almost one million barrels of naphtha.

From this point on the development of the Turner Valley field was slow but steady. In the late 1930's several new wells were drilled but the growth was not spectacular. Demands in World War II for new supplies stepped up exploration. In 1942 the field reached a peak of twenty-nine thousand barrels a day, but by this time the demands of the western provinces operating the Commonwealth Air Training Scheme had soared enormously.

In 1946 the Conrad and Taber fields near Lethbridge were important discoveries, as was the Lloydminster field. However, these were soon overshadowed by the bonanza at Leduc.



In 1947 Leduc No. 1 came in to open a new oil era for Canada

ENTER LEDUC

In February 1947 Imperial Oil brought in a well called Leduc No. 1 after they had drilled one hundred and thirty-three dry holes in Alberta over the previous thirty years. Geologists knew that oil was somewhere but until that time they could not lay a finger on the vital spot. Imperial Oil's one hundred and thirty-fourth wildcat well was seventeen miles south of Edmonton.

Overnight Leduc became the greatest field in Canada. In this area oil was found in a type of formation known as a Devonian coral reef. Soon a whole host of adjacent fields were discovered—Woodbend 1947, Redwater 1948, Golden Spike 1949 and Pembina 1953. Edmonton was ringed by oil wells.

The crew that brought in Leduc No. 1 ran into hopeful signs of natural gas and oil when the drill went through the Lower Cretaceous; in the Devonian there were showings of oil in the mud. This was at a depth of over five thousand feet. Hopeful of the well coming in, the company invited press and radio commentators, government officials and others to see the well blow in. Luckily it performed according to plan and came in with five thousand feet of oil per hour.

The second well that was drilled went two hundred and fifty feet deeper and a second great pool of oil was found. It was in fact like finding one oil field below another. The new zone was called the D-3 zone. This second great reservoir was found to have two hundred million barrels of oil, nearly three times as much as was in the pool above.

Within a few months the whole of the Leduc field had been outlined. This was remarkable for the Ontario field had taken thirty-five years to establish, and Turner Valley twenty-five years. At least part of the reason for the speed with which drilling went ahead was the fact that the Leduc field produces oil at from two to four thousand feet closer to the surface than Turner Valley, and Leduc has no tough, hard rock. A well a mile deep can be drilled on an average of ten weeks. A glance at the profile map on page 74 will show why oil is found closer to the surface in the Leduc field.

The speed at which drilling and exploration are going ahead in western Canada makes a constantly changing picture. It would seem that the discoveries in this post-war period are a mere scratching of the surface.

The sedimentary basin of western Canada which contains this wealth of gas and oil covers an area three times the size of the state of Texas. Exploration in the Texas field which has been active for the past fifty years is still going on, and makes us realize the possibilities of the future Alberta. At the present time Canada is the tenth petroleum producing country in the world; ahead of her are the United States, Venezuela, Russia, Saudi Arabia, Kuwait, Iraq, Indonesia, Iran and Mexico. However, the proven recoverable reserves of Alberta oil are going up constantly. In 1952 they stood at seventeen hundred MILLION barrels, but by 1954 they were two BILLION barrels. Estimates of recoverable oil from the vast bituminous sands at Fort McMurray have varied from one to three billion barrels. The sands lie along the Athabasca for a distance of over a hundred miles between latitude 57° and 58° and are impregnated with an average of fourteen to fifteen percent bitumen. They were first mentioned in 1719 when a Cree Indian who traded with the Beaver tribe and then took their furs to Hudson Bay also took with him a sample of "that Gum or Pitch that flows out of the banks of that River". Peter Pond was the first white man to see the outcropping. Various methods have been tried to find an economical way to extract the oil from these sands. A process must be found that will enable oil and various products to be produced from the heavy crude of the sands that would be cheaper than the traditional methods now used. It is only a question of time until a method is found to be practical and at the present time discussions are under way about the use of nuclear explosions. Although this wealth at present remains untapped it is nevertheless one of the greatest potential sources of crude oil in the world.

As from September 1958 Alberta can boast the largest gas well in Canada. Said by some to be the largest in the world, the B.A. Shell well at Berland River, with a controlled flow of forty-one million cubic feet per day is thought to have a capacity of two hundred and twenty seven million cubic feet. It took eight months to drill, went down to twelve thousand feet to the Devonian layer, and the gas bearing section is five hundred and fifty-one feet thick.

It is not possible for us to describe all the details of the exciting search for oil and gas in every part of the province, the dangers, the problems and the ultimate victory. The building of the pipelines to the Coast and to Eastern Canada presented further problems.

At the present time production exceeds demand in oil and the Conservation Board divides the total demand each month among all the wells in the province. Methods of conservation are practised to ensure that our valuable resources are not wasted or lost. Gas and water are injected into wells to provide additional energy to produce more oil. Pressure is needed to make the oil move and injections repressurize or maintain pressure in the wells, and increase enormously the amount of recoverable oil.

World and national demands for oil products are growing and eventual production is assured. New markets for natural gas are providing further incentive for drilling. New industries are being attracted to Alberta by a growing market and a ready supply of raw materials. Truly our oil and gas are amongst our greatest riches.

* * *

The story of Atlantic No. 3 which follows is a condensation of one published in the Imperial Oil Review of January 1949. It describes some of the problems which drillers run into whenever a well goes wild.

THE CONQUEST OF ATLANTIC NO. 3

On the evening of Labor Day 1948 the people of Edmonton saw a column of billowing black and white smoke with flame at its base on the southern horizon, and word soon spread through the oil-wise city that Atlantic was on fire. Atlantic No. 3 was Leduc's newest well, and gave Canada its most unusual and in many respects its most spectacular fire of 1948, burning an estimated fifty thousand dollars' worth of oil a day.

On that evening flames could be seen from sixteen miles away and the neighboring highways became choked with automobiles as thousands drove out to take a closer look at the spectacle. Radio commentators filled the air with their descriptions of the blaze and newspapers across Canada rushed pictures and stories into print.

The fire directed more attention to the oil fields of Alberta than any other recent development. People who had read about, but not paid much attention to the discovery of a two hundred million barrel field at Leduc now said, "That's a big fire. It must be a big oil field", and as one observer remarked, "The fire certainly put Alberta oil on the map."

The fire is only the middle of Atlantic's colorful story. The flames broke out when oilmen had success almost within their grasp after months of driving, round-the-clock work to kill the wild well. The beginning was in March when the well blew out of control; and the end did not come until November when cement finally concluded Atlantic's turbulent career.

The well, which was on a farm northeast of the Leduc discovery well, was drilled by the Atlantic Company and came in on March 8th as a gusher, out of control and spraying gas-driven oil. It spouted some ten thousand barrels of oil and fifty million cubic feet of natural gas in a great dirty brown column reaching one hundred and fifty feet in the air. The snow-covered fields were splattered with an oil-film, the ground shook and from the well came a steady high-pitched roar. Atlantic was on the rampage!

Several tons of mud were pumped down the well and after thirty-eight hours the flow was shut off, and temporarily Atlantic was under control. In an attempt to kill the pressure of gas in the hole large volumes of mud, cement and other materials were pumped down, but these efforts were not successful and a new trouble soon developed. The high pressure in the formation 5,267 feet below forced gas through the fissured rock and up to the surface at several points around the well. By early May surface craters had multiplied from a few to several hundred, and oil began to gather in pools over a forty acre area. Work continued non-stop in an attempt to check the outburst and an expert from Texas was called in to direct the battle.

In the next few weeks plans were made to set off explosives below the ground and cave in the hole, but this was not possible. A mixture of feathers, sawdust, cottonseed hulls, redwood shavings and ten thousand bags of cement was pumped down, but the well devoured everything the drillers fed it and the fodder vanished without a trace.

By May 7th the wild well was affecting the operations of the entire Leduc field: the oil flowing through hundreds of craters in a ten acre area mounted as high as fifteen thousand barrels a day. Most Leduc wells voluntarily closed down so that the Imperial Pipe Line Company line to Nisku could be used to carry off the oil being salvaged from sumps and pits. Five days later it was estimated that the dikes around the well were holding seventy-five thousand barrels of oil spread over forty acres. The ten acres west and north of Atlantic were a green-black cauldron in which twenty to fifty foot geysers spouted oil, gas and mud.

The area had become a public menace and on May 14th it was announced that the Alberta government had taken over the Leduc field and formally ordered all sixty-one producing wells to shut down to permit all the facilities of the pipe line to be used in removing oil from the Atlantic pits. The area was barricaded to keep the public out and planes were forbidden to fly over Leduc lest the estimated fifty to a hundred million cubic feet of gas which were escaping daily should ignite.

The Nisku line was pumping thirty thousand barrels a day to the railhead, but loading facilities could handle only seven thousand eight hundred barrels. However, with the co-operation of the Canadian National and Canadian Pacific Railways twelve thousand barrels were soon being loaded and the oil lake began to drain. Some wild oil was forced down to the reservoir formation, a mile below the surface of the wells Atlantic No. 1 and No. 2, and by June 5 most of the oil which had accumulated in the pits had been pumped away. In the meantime it was decided to drill two directional relief wells to meet the original hole close to the producing area and then to pump materials down the relief wells to choke off Atlantic's oil at the source. This would take months of hard work. Drilling continued through the summer and all the difficulties of directional drilling were encountered. With success almost in sight, the south well ran into trouble and had to be re-drilled. The west well too came in for some re-drilling, but by the end of August it was completed in hard green shale just above the producing formation. In an effort to break through to the Atlantic No. 3 hole, surface pressures of three thousand pounds to the square inch were exerted but they failed to break through the shale.

Meanwhile the fire hazard at Atlantic remained as a constant threat which merely varied in degree as the work proceeded. The boilers needed for the drilling of the two relief wells caused continuous anxiety. Wind socks were set up all round the field, and when they warned that gas or oil spray might be blown in the direction of either drilling rig, the boiler fires were cut immediately. It is ironic that the fire when it did break out came just as the relief wells were almost ready to do their job. It was as if Atlantic No. 3 knew its days were numbered and through sheer cussedness decided to stage one last almighty act of defiance.

All through the summer the No. 3 derrick and drilling rig had stood quietly in the field. The equipment was ringed with craters but most of them were at a distance. In the first week of September Atlantic No. 3 answered the west well's challenge. Craters began to break out close to the original well head. The derrick shook as cratering increased. Great chunks of rock shot into the air accompanied by escaping oil and gas. After several days the tall steel structure, undermined, started to lean southward. If it fell into the churning crater, a flying rock might hit the metal, strike a spark and touch off a great fire. A crew of twelve men was sent in. They jacked up the derrick working at top speed, and then got out as fast as they could. Within an hour the one hundred and thirty-six foot derrick was tipping again, to the north this time. It toppled at 1 a.m. on the Labor Day morning and by daylight all of it had disappeared in the crater except for a few feet of jagged broken metal broken off from the upper part.

The well continued its volcanic action, building up a mound fifteen feet high around the main crater. The same morning the drillers deepened the west well to connect it directly with the producing formation. Water injections were started immediately and then, later, the well was acidized to "open up" the formation and thus increase the rate of water injection.

At a quarter past six that evening a ball of fire appeared over the derrick floor, danced briefly, then skipped down into the main crater. With a great, sighing "Whoosh" the escaping oil and gas caught fire. There was no sudden explosion but the flames roared four to eight hundred feet into the sky and the column of smoke mushroomed up until it flattened off at seven thousand feet.

After months of anxiety and careful precautions a spark had jumped from somewhere. Perhaps it was shale striking the collapsed metal derrick; perhaps it came from rock striking rock or even from pressures rubbing metal upon metal in the crater. No one miraculously was killed or injured. "Well, at least we can smoke now," a tired roughneck said, as the fifty thousand dollar a day fire roared.

Flames licked out to ignite the oil sumps and in twenty minutes the whole forty acre area was ablaze. The flames burned over the oil-soaked earth as thousands of gas-fed flares dotted the area around the orange-black center tower of flame and smoke. A battery of twelve bulldozers threw up a fire guard around the well site, inching closer as oil burned out of the earth.

But the fire really was fought from the west relief well. More acid was pumped into the hole to permit an increase in the amount of water injected. Then the water pumps took over again forcing one thousand five hundred barrels an hour into the depths to swamp the fire at its source.

On Wednesday afternoon the black smoke showed tinges of grey as steam appeared where oil and gas had gushed. Early next morning the well gave forth three last great belches of flame, sputtered and died.

A few days later the south relief well completed drilling and the long and difficult job of cementing the wild well to close it forever was started.

In its wild career Atlantic No. 3 produced an estimated 1,250,000 barrels of oil, but most of it was recovered from the pits or pumped back into the formation. The loss in natural gas can only be guessed, but it is believed that between fifty and one hundred million cubic feet daily escaped into the air. The lowest of these figures gives a total of seven billion cubic feet during the time the well was uncontrolled.

In six months and a day Atlantic No. 3 became the second greatest producing well Canada has yet had. Besides publicizing the Leduc field, the wild well contributed considerable information to production engineers. There was comparatively little loss of oil, no loss of life and fire advertised the field as nothing less spectacular could have done.

These features helped to offset the damage done by the rampaging well, but oil men who worked day and night for the long months needed to subdue Atlantic No. 3 don't want to see another rogue well as long as they live.

THE CHEMISTRY OF PETROLEUM

As it comes from the well crude petroleum is of little use. It is made up of many different hydrocarbons, so-called because they are composed of chemical compounds of the elements carbon and hydrogen. These hydrocarbons range in structure from methane CH_4 to heavy asphalts. Listed below are some of the lighter ones:

Methane	$C\ H_4$	Hexane	$C_6 H_{14}$
Ethane	$C_2 H_6$	Heptane	$C_7 H_{16}$
Propane	$C_3 H_8$	Octane	$C_8 H_{18}$
Butane	$C_4 H_{10}$	Nonane	$C_9 H_{20}$
Pentane	$C_5 H_{12}$	Decane	$C_{10}H_{22}$

The lighter members from methane to butane are gases, from C_5 to C_{17} are liquids and from C_{18} to C_{100} are solids.

The crude petroleum must be refined, and the fundamental process of distillation for the separation is based on the fact that petroleum is a mixture of gases, liquids and solids with a wide diversity of boiling points.

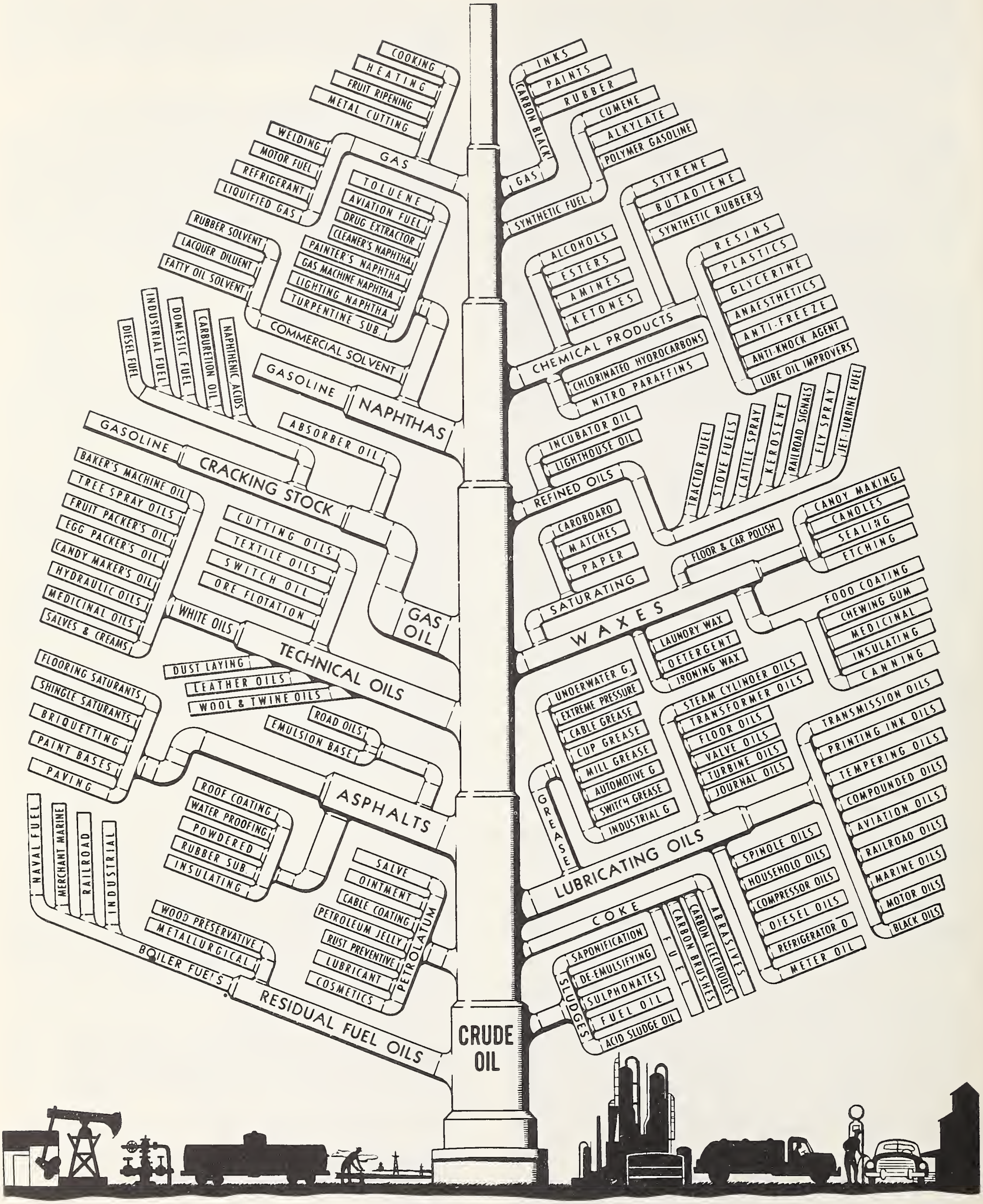
In the refinery the crude oil goes into a fractionating tower, about a hundred and twenty-five feet high, where horizontal trays are spaced from bottom to top. Large furnaces produce the heat for vaporization; thus the compounds with the highest boiling points rise and finally become liquid at higher levels. Some of the compounds rise to the top as gas. The process is repeated several times for complete purification and the products (or fractions) are drawn off for cooling and further treatment.

The principal product is gasoline and by normal separation processes not enough can be produced to meet the ever-growing demands of modern life. A method known as "catalytic cracking" is now the most used method for producing gasoline from crude oil. In "cat-cracking", as it is more generally known, the heavier molecules present in, for instance, fuel oil are cracked into lighter molecules. By this method it is possible to produce more than twice as much gasoline from a barrel of crude oil than can be obtained by simple distillation.

High octane motor-fuels are produced by a process known as polymerization, which is the opposite of cat-cracking. It combines small molecules into larger ones which can then be condensed into liquids, suitable for motor fuel.

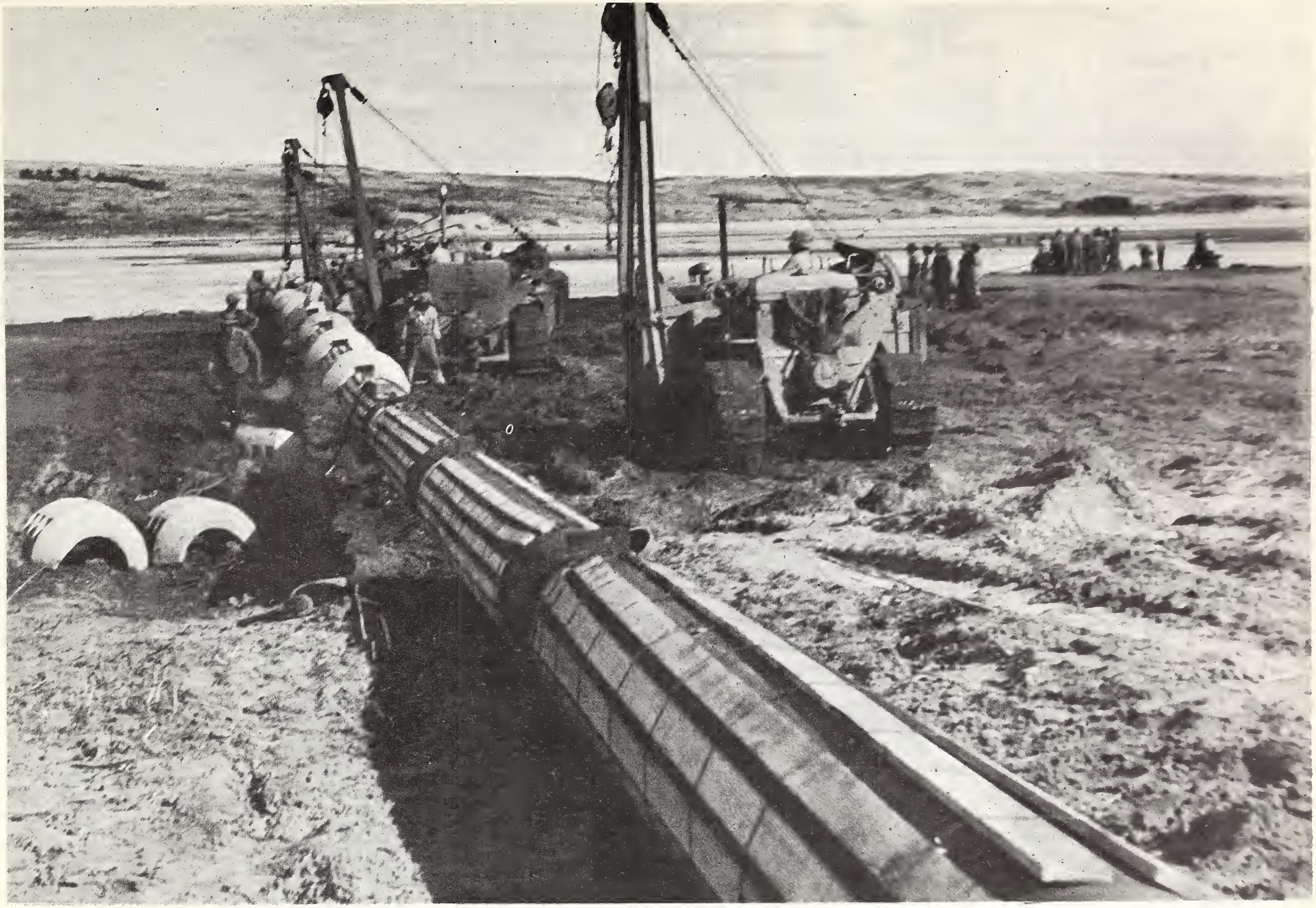
What We Get from 100 Gallons of Petroleum
(average yield)

Product	Gallons
Gasoline	42½
Kerosene and Jet Fuel	5½
Light Fuel Oil	20
Heavy Fuel Oil	20
Lubricating Oil	2½
Asphalt, Waxes, Coke and Other Products	9½



Crude oil is a basic material in the manufacture of more than 300 products. Sketched here is the production tree, showing the many vital products which come from today's crude petroleum.

A. W. Davey, Saskatchewan Government



Laying the Trans Canada Pipe Line

Courtesy Imperial Oil

NATURAL GAS

In the olden days natural gas where it burned in the earth was regarded as a manifestation of the gods, and was often kept burning as a tribute to them.

In more recent years, whilst people were mining for different minerals they came across natural gas accidentally and considered it as a nuisance, as they did not recognize its possibilities. Not until the late nineteenth century was it used on a commercial scale for lighting, but since that time the industry has developed very rapidly indeed, and natural gas is now used in millions of homes for both heating and cooking purposes.

Natural gas is a mixture of chemical compounds; some of them, methane, ethane, propane and butane normally exist in gaseous form; others such as pentane, hexane, heptane and octane may be gases when they come into the well but condense at the surface. If there is a larger proportion of the first four then the gas is known as "dry" and if a larger proportion of the last four then it is known as "wet". Most of the natural gas which we use in our homes is methane.

Gas may also contain impurities such as hydrogen sulphide, carbon dioxide, nitrogen and water. Hydrogen sulphide can be easily detected by its smell, and even in small quantities it can be poisonous and is removed by a process known as scrubbing. If sufficient quantities of hydrogen sulphide are available solid sulphur, for which there is a ready market in Canada, may be recovered as it is at Jumping Pound.

Gas is normally found in porous rock covered by shale, which keeps the gas in and the air out. Almost all oil fields have gas: in some places it is mixed with the oil and must be extracted in a gas separator: in other fields it occurs with the oil but is not mixed with it, and in some places it is found alone.

At one stage a great deal of natural gas was wasted at the oil fields before it could be controlled. To prevent such enormous wastes of gas as occurred at the Turner Valley field a Conservation Board was set up. Now the gas is housed in vast storage tanks, or kept underground in its natural reservoir, since it helps to drive the oil, or it is stored in abandoned gas fields.

Pipe lines through which the gas is forced take it to where it is needed.

The Pipe Lines

The Alberta oil fields lack one advantage that the Texas oil fields have, namely cheap ocean transportation. To take Alberta oil to eastern Canada (Ontario and Quebec) the Interprovincial Pipeline Company, a subsidiary of Imperial Oil, began in 1949 an oil pipeline 1,160 miles long to the head of the Great Lakes. In 1950 it had been completed at a cost of ninety million dollars. The line could carry forty thousand barrels a day at a cost of fifty-five cents a barrel as compared to $1.86 by rail freight. In 1952 the line was extended to Sarnia where a large refinery is situated. The capacity of this line was later stepped up to three hundred thousand barrels per day. Also in 1952 a pipeline was built from Sarnia to Toronto to carry the refined products.

It was decided in 1952 to build a seven hundred and eighteen mile Trans-Mountain Pipeline to the Pacific Coast to take care of the British Columbia market and the Pacific Northwest area of the United States. This line had an initial capacity of a hundred and twenty thousand barrels per day.

The natural gas pipelines took longer to build. Alberta decided not to export any gas until thirty years' reserves for Alberta were established. By 1951 this seemed assured.

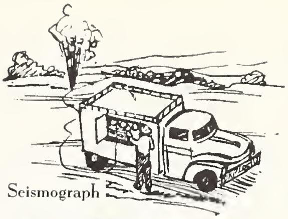
In 1952 approval was given to the West Coast Transmission Company for a gas pipe-line from Peace River to Vancouver and on to Seattle and Portland. Prior to this a short line had been built from southern Alberta to Butte, Montana, to serve the Anaconda Copper Company with a cheap serviceable fuel.

The Trans-Canada gas pipeline was begun in 1956, and takes over from the Alberta Trunk gathering system one mile inside the Alberta-Saskatchewan border where the gas is metered. It is approximately two thousand three hundred miles long and one of the longest in the world. The overall cost of the project is three hundred and seventy-five million dollars. The line, from the Alberta-Saskatchewan border to Toronto and Montreal with lines to Emerson, Manitoba and south west Ontario will make Alberta gas available to one-third of the population of Canada. The volume of gas involved will range from 82,500,000 cubic feet per day in the first year following the completion of the line to 165,000,000 cubic feet daily in the fifth year. It is estimated that for the fifth year the gross revenue to Trans-Canada will be about twenty million dollars.

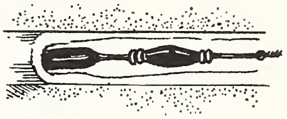
Indirectly the operation of the line will be responsible for the expansion of many Alberta industries, some of them connected with the processing of the by-products of the natural gas which have to be removed before the gas enters the pipeline. The resulting industrial chain reaction will bring more wealth to Alberta.

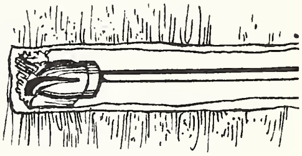
OIL TERMS

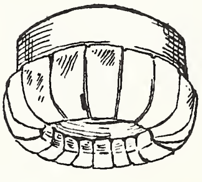
Seismograph	An instrument used to measure the earth's tremors. This is used in exploring for oil by putting a charge down a shallow hole and measuring the vibrations as they are reflected back from various rock strata.
Wildcat Drilling	Exploratory drilling.
Core	A section of rock about four inches in diameter and between one or two feet in length, useful in obtaining information about rock formation. A diamond bit is used to cut a core.
Magnetometer	An instrument which measures small changes in the earth's magnetic field. It is useful in finding iron ore and has been used in the air as a guide to the presence of sedimentary rocks in which oil and gas are found.
Cable Tool Rig	Uses a heavy bit with chisel edges set at an angle to each other. The cable tool rig was used until about 1900. The bit was dropped into the hole to break the rock.
Rotary Rig	Has sharp teeth on cones that roll over the bottom and break up the rock. This is the newer way to drill.
Royalty	A share usually paid to the government from every barrel of oil or cubic foot of gas.
Naphtha (condensate)	Almost pure gasoline. Could be burned in a combustion engine.
Coral Reef	Built by corals and other marine life in a limited area with shale abutting. These reefs often build to great thicknesses when the sea bottom is sinking with the building operation near sea level. The Leduc field reef is expected to produce a hundred and thirty-seven million barrels of oil.
Scrubbing Plant	A plant at which all foreign matter is removed from natural gas. At Jumping Pound the scrubbing plant removes sulphur.
Horizon	The level of a rock stratum.
Porosity	The absorbent capacity of a substance. In the case of a rock such as limestone this depends on the porous nature of the rock.
Volatile	Easily changed into vapour.
Catalyst	A substance which promotes or permits chemical reaction between other substances without itself undergoing any chemical change.
Catalytic Cracking	Breaking down of heavy hydrocarbons into lighter ones (i.e. ones with a lower boiling point) by the application of heat and pressure assisted by the use of substances known as catalysts.
Derrick	A square open tower which is used for lifting, lowering and supporting the tools used to drill an oil well.
Swabbing	When it is expected that the drill is close to a pool of oil, the mud and water are lifted out of the hole. This decrease in weight in the hole often causes the oil and gas to break through the crust that remains.

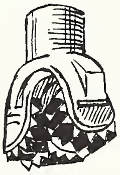

Seismograph

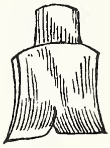
Core


Cable Tool Rig


Rotary Rig


Roller bit


Diamond bit


Fish tail bit

Volatile

"Cat-cracking" unit

Derrick

THE ORIGIN OF COAL

Before the Rocky Mountains rose from the sea floor a tropical climate prevailed over all of western North America. The unstable surface alternately rose and fell allowing the sea to inundate large areas periodically. Between inundations the area was characterized by swampy bays and lush growth of tropical vegetation.

The thick layers of vegetation became peat bogs which subsided and allowed the water to bury them under heavy deposits of sand, silt and mud. Frequently, great layers of volcanic ash from the interior of what is now British Columbia would be blown eastward and settle on the vegetation before the sea advanced. The weight of all these depositions compressed the plant fibres and transformed them into layers of coal.

Great pressures exerted on the Pacific Coast caused the earth's surface to fold and crack, forming a succession of mountain ranges the last and most easterly of which we know as the Rockies. This mountain building movement frequently tilted the layers of sediments in such a manner that the older ones were left at the surface. Thus, coal seams which would otherwise have been several thousand feet down, are exposed along the eastern edge of the mountains. These older coal seams have been affected by a greater weight of sediments and further compressed by the folding of the sediments.

Age and pressure mature and ripen coal. The oldest Alberta coal is comparatively young when compared with coal found in eastern United States and parts of Europe. However, along the mountains extreme pressures have been a partial compensation for the lack of geological age and it is in this area that we find our best coal. As we go east from the mountains the quality of the coal deteriorates.

COAL CLASSIFICATION

Coal is classified on the basis of a standard of testing. These tests determine the percentage of moisture, ash, gaseous material and fixed carbon contained in a sample.

Moisture and ash are detrimental to coal. Volatile matter makes coal burn more rapidly. Fixed carbon provides the high heat value. Heat is usually expressed in terms of British Thermal Units or B.T.U.'s per pound.

Alberta coal is classified in five groups according to these tests.

Five Groups — Characteristics and Analysis

GROUP I.

Low volatile, non-coking coal from mountain areas. Commonly called steam coal.

A good storage, weather resistant coal. Burns with a short, slightly smoky flame. Used for railways and for steam raising in general. This coal, when briquetted, is also used for domestic heating.

Important areas where this coal is mined are: Cascade, Highwood, Nordegg.

GROUP II.

High volatile, coking bituminous coal from mountain areas. Also commonly called steam coal.

A good storage, weather resistant coal. Burns with a medium to long, smoky flame. Used for railways and for steam raising in general. Also used for making coke, as smithy coal, and in the cement industry.

Important areas of this group are: Crowsnest and Mountain Park.

GROUP III.

High volatile, non-coking, coal, principally from foothills areas.

A good storage, weather resistant coal. It is a free-burning, non-coking coal that burns with a long, slightly smoky flame. Used for domestic and for steam raising purposes. It is a strong coal and can be shipped and stored reasonably well.

Important areas of this group are: Coalspur, Lethbridge, Prairie Creek, Saunders.

GROUP IV.

A so-called domestic coal, fair storage, from prairie areas.

Can be stored, with care, under cover. It is a free-burning, non-coking coal, that ignites easily and burns with a long, smokeless flame. Used for domestic heating and also for steam raising. It can be shipped in box cars.

Important areas of this group are: Carbon, Drumheller, Edmonton, Pembina, Taber.

GROUP V.

A so-called domestic coal, poor storage, from prairie areas.

Will not store well. It is a free-burning, non-coking coal, that ignites easily and burns with a long smokeless flame. Used for domestic heating and also for steam raising. It can be shipped in box cars.

Important areas of this group are: Camrose, Castor, Sheerness, Tofield.

HISTORY OF ALBERTA COAL

Although Alexander Mackenzie first discovered large deposits of coal on the lower Mackenzie River in 1789 and Edward Umfreville discovered a "float" on the Saskatchewan River eastward from the Alberta boundary in 1786, to Peter Fidler must go the credit for finding the first coal deposits in the territory now known as the Province of Alberta. Fidler discovered coal in the Drumheller district on what is now known as Rosebud Creek in 1791.

Alexander Mackenzie discovered large deposits of coal in the Peace River Block in May 1793 and, according to Dr. J. A. Allan, this was the first mention of anthracite in this territory. Mackenzie's notes indicate that he was highly impressed with the tremendous size of the deposits which he discovered, particularly in the lower Mackenzie River district where he found that the whole river bank was on fire for a considerable distance.

David Thompson was the first explorer to record the occurrence of coal in the Edmonton district in 1800 and the Saunders Creek deposits were reported first in 1810 by Alexander Henry Junior.

Sir George Simpson who first recorded the presence of gold in Alberta, discussed at some length the coal of the Edmonton district and, stating in 1841 that it was being used by blacksmiths, reported that it was as good as any other blacksmith coal obtained from mines either in Eastern Canada or in the United States.

A general statement covering discoveries in the foothills regions of Alberta indicates that coal was first located, possibly in the Canmore-Bankhead district in 1845.

Sir James Hector, travelling with the Palliser expedition reported on coal seams on the Athabasca and Pembina Rivers. The location of these discoveries coincides quite well with the site of the present mines operating in these localities.

Dr. George M. Dawson came to the west in 1865 to make the first exploration along the international boundary line. He reported in that year that great coal seams existed in the treeless areas and published a map which had considerable influence in effecting a change in the general sentiment of Eastern Canada toward the western prairies.

The first person to interest himself in coal-mining as an industry was Nicholas Sheran, an Irishman who had emigrated to New York, fought as a soldier in the Battle of Gettysburg and who later came into Canada by way of Fort Benton with the whisky traders in the hopes of finding gold. Instead of gold, he found coal at the junction of the Oldman and the St. Mary Rivers, but the seam was thin and in 1872 he moved to where the Canadian Pacific Railway crosses the Oldman River. There he dug coal which was transported to Fort Benton by ox cart where it found a ready market at $24.00 a ton. Sheran would have been able to make considerably more money coal-mining than he would have done with the whisky traders, but he was drowned in the Oldman River while assisting the police to cross.

Northern Alberta was explored for coal in 1885 and 1886 by J. B. Tyrell. This exploration included the Edmonton district and resulted in the marking of a number of coal seams which he discovered along the rivers.

During the construction of the Canadian Pacific Railway in the vicinity of the Rocky Mountains, coal was being hauled from the United States. In 1881 the first coal seam was opened in the Lethbridge district, the product from this particular mine being hauled to Medicine Hat. It was used in locomotives and found to be so satisfactory that a narrow gauge railway was built to Lethbridge and a mine opened in that area.

The next year, 1882, and also in 1883, coal mines were opened at Anthracite and Canmore. The product of these mines was used in the heavy construction work of the railway through the mountains. It has been stated that if the prairie and foothills of Alberta had not been successful in supplying considerable coal for locomotives, much of the railway construction work in the mountains would have been delayed considerably. The Crowsnest mines were opened about 1898.

Following these events, and as a result of the importance attached to Alberta's coal reserves, a certain amount of detail work was carried out by the Federal Geological Survey. Stratigraphical information was obtained throughout Alberta as a result, and the distribution of many coal bearing formations was marked as accurately as the geological knowledge of that time would warrant.

Development of the coal producing areas on the railway from Bickerdike to Cadomin, Luscar, Mountain Park and Sterco followed the construction of the former Grand Trunk Pacific line into the Yellowhead Pass in 1911 and 1912 and extended over a number of years. The Nordegg field was opened with the construction of the former Canadian Northern line about 1913.

Canada is estimated to have about ninety-nine billion tons of mineable coal. The discovery of gas and oil in large quantities in Alberta has resulted in a partial eclipse of the coal-mining industry, but we should not forget that Alberta has forty-eight percent of Canada's total reserves of coal.

TRANSPORTATION IN ALBERTA

From the Indian trails to the surfaced highways which cover Alberta today is a development which has taken millions of dollars, hundreds of tons of material and all the skill modern man is capable of using in facing difficult problems.

The network of rivers provided our first lines of communication. From Churchill on Hudson Bay the Hudson's Bay traders followed the Churchill River system to Methy Portage and on to the Athabasca in northern Alberta, while the Saskatchewan-Nelson system provided the entry to central and southern Alberta. Canoes and later York boats and finally steamboats were used on the Saskatchewan waterways.

The canoes were made extra large to carry fur freight but York boats though slower were found to be more satisfactory. As long as the two trading companies were competing, speed was of great importance, and the canoe was the faster moving vessel. Some of these were very large and very strong, the average being about thirty-six feet long and six feet wide in the middle. The furs were baled into ninety-pound bundles and placed on four poles which were in the bottom of the canoe and were arranged so that none of the furs touched the unprotected sides. It was important to distribute the weight equitably throughout the canoe. These loaded vessels usually weighed in the neighbourhood of five tons.

After the two companies joined forces in 1821, speed was no longer of primary importance. Bulky machinery and materials which were in demand for a higher standard of living at the forts made it necessary to have boats which could carry heavy loads, and York boats met this need.

Much of the boat building was done at Edmonton. The boats were long, narrow wooden craft of heavy construction varying in length but usually about forty feet long and ten feet amidships. They had flat bottoms heavily planked with in-curving sides. The crew of ten to fifteen rowed with heavy oars called sweeps. Sometimes the boats put up a sail which was fastened at the top to a free-swinging yardarm. The bottom of the sail was wider than the boat and was secured to the mast guy ropes.

When the trip upstream became difficult because of the rapid current, the men poled if the river was shallow but if the water was deep they had to track. Tracking meant putting the crew ashore with a long line to which were fastened pulling harnesses to fit over the men's shoulders. Where the shore lines were muddy or strewn with rocks the crews hated the task for it became exceedingly heavy work.

At this time Norway House at the northern tip of Lake Winnipeg was the distributing center for the west. Materials came in from Hudson Bay by the Nelson River and out via the Saskatchewan Rivers to the various forts. Edmonton was an important center, as the smaller trading posts in the area were under the care of the Edmonton Hudson's Bay Company factor.

As time went on increased transport on the Missouri River made Fort Benton in Montana the center of trade, and mule trains brought materials for trade to the Blackfoot Indians—materials which had previously come by Edmonton. Consequently water transport diminished greatly in importance. However, in 1875 there were still quite a number of steamers in Saskatchewan and six operated from Fort Garry to Edmonton in 1883. The passenger rates were:

Upriver: Cabin $70.00. Deck $35.00.
(Freight 6¼c per pound.)
Downriver: Cabin $65.00. Deck $32.00.
(Freight 5c per pound.)

These steamers had belonged to the Hudson's Bay Company until 1881 when they were sold to a transport company. The coming of the railway in 1885 finished all such types of transportation.

In Alberta travel overland began with the growth of Fort Benton on the Missouri as the chief distribution center for the West. Large river steamers brought supplies as far as Fort Benton and from there bull and mule trains carried them up to Calgary. These teams required dry firm ground and on the traffic route from the south could operate from seven to eight months of the year.

A bull team was made up of a number of animals. Each team might consist of six, eight, ten or fifteen yoke of oxen. Each team drew three carts called a lead, a swing and a trail which were coupled together like railway carts. The lead pair of oxen in the team were usually very well-trained, intelligent animals that could be controlled by the crack of a whip or spoken word. To make the wagons stable on steep hillsides they had a six-foot gauge. The train carried a load of from sixteen to twenty-one tons depending on the number of animals in the team. Teams travelled about eight to ten miles a day. The wagons groaned, the bull whackers, as the drivers were called, shouted continuously and the dust from the feet of the oxen rose in clouds. It was not a pleasant way to travel.

The coming of the trans-Canada railway to Winnipeg in 1881 lessened the importance of Fort Benton and the Red River Cart was devised to move goods across the prairies. The Red River cart had originally been used to bring buffalo meat in after a hunt. It was a two-wheeled cart having twelve deeply dished spokes and wheels six feet high that were bound with shag-an-appi (rawhide). A pair of shafts was fastened to the axle and a pony or an ox was placed between the shafts to draw the cart. Built on the shafts and between the wheels was a platform, surrounded by a light railing, in which loads of five hundred to one thousand pounds were carried. The vehicle was light and strong and was easily repaired. Brigades of four to six carts were often managed by one driver. The characteristic creaking of the carts could be heard for miles.

In 1862 Father Lacombe brought the first train of Red River carts from Red River to Edmonton. This marked the change with Fort Garry, later known as Winnipeg, becoming the distributing center for the West instead of Edmonton. Trains of eighty to one hundred carts regularly creaked their long weary way across the prairies.

From this time on transportation changed radically, first to trains and later to automobiles. Then came the task of reforming the roads. This task is a continuous one. New roads are being surveyed, cleared and graded every year: others are gravelled and hard surfaced. Old hard surfacing has frequently to be torn up and refinished.

As the years go by more and more people use the highways for pleasure, for business and for heavy freighting, and work on the roads must go on ceaselessly.

The MacKenzie Highway

The newest road built from Indian trails to an all weather thoroughfare was the MacKenzie Highway, which provides an important outlet for the country north of the Peace River area and the North West Territories.

It was first begun in 1938. During the winters of 1938-39 and 1939-40 preliminary surveys were made for a winter tractor road to Hay River on Great Slave Lake.

The road was surveyed through some of the wildest country in Alberta. Dog teams and pack horses were used to carry supplies and tents were pitched at night for sleeping quarters.

The survey crews knew that the road would probably some day be used as a highway so they chose high ground whenever possible. This survey followed the Hay River and was done so carefully and well that the present road varies for most of its length less than half a mile from the original survey.

In the original survey party many of the men were Metis who are excellent bush men. Two of these men cut the biggest section of the trees from the path of the group who followed. They cut a path five feet wide and one hundred and fifty miles long.

Actual construction of the winter road followed forty to fifty miles behind the survey parties. The work which was done under great difficulty was completed by 1940.

The war years made it apparent that a better road should be built to the Yellowknife area providing a means of access to the minerals and to make a route to the Norman Wells area.

A new survey was required. The road was to be twenty feet wide and a right of way of ninety-nine feet. Five steel bridges were put in: Meikle River—175′; Kemp Creek—80′; Keg River—80′; Hay River—350′ and Steen River—130′.

One of the greatest difficulties in building this road was the perma-frost which was to be found on the northern stretches of the road beyond Alexandra Falls. Perma-frost goes down to a depth of over one thousand feet and naturally does not respond easily to digging. When the top soil is removed several feet of earth below this then thaw and turn to gumbo: if this gumbo is scraped off then the ground below that thaws and so on. In order to avoid this the top soil is often not removed or at least not entirely removed: the gravel is merely piled on top and worked down.

The highway was completed in 1949. It has a fine hard-packed surface, over which cars and buses run regularly. Snow plows keep the road open for winter travel.

For the interested tourist who wants to get a glimpse of new territory this three hundred and eighty-six mile long road offers many attractions. North of Hotchkiss at Meikle River comes the dividing line between the agricultural area and the wilderness. There is a perfect view of the great valley at the Meikle River. Beyond Paddle Prairie the small homesteads and cleared fields of the Paddle Prairie Metis colony can be seen. At High Level which is the turning-off point for the Fort Vermilion road, a store and motel are to be found.

At many points along the highway there are teepee poles of abandoned Indian camps. Sometimes a group of Indians is sighted. In some camps there are both modern tents and teepees. Clouds of thick smoke indicate that meat is being cured and racks contain drying skins.

One of the most beautiful sights on the MacKenzie Highway is Alexandra Falls near Mile 350. The Hay River drops one hundred and nine feet into a roaring foaming gorge. Louise Falls about three miles downstream from Alexandra Falls cannot be seen from the highway, but requires a mile walk in from the road.

The highway follows high ground into Hay Lake along the river. There is a beautiful view of the river below and of the mighty Slave Lake ahead.

This newest highway through the wilderness has developed from a bush trail in 1940 to an all-weather highway in 1952.

Air Travel in Alberta

After the first Great War many of the pilots returning to the west from overseas were anxious to continue flying. In a very short time a number of such men, including "Wop" May, "Punch" Dickens and Leigh Brintnell were busy in the development of air transport from Edmonton to the north.

In 1929 "Wop" May with a number of other enthusiastic "bush" pilots organized an airline known as the "Commercial Airways". In that year the first mail was flown to Aklavik from Edmonton. "Punch" Dickens piloted this plane across the barren lands of the North West Territories to the tiny outpost on the Mackenzie River Delta. He found himself surrounded by numbers of admiring Eskimos. Six at a time, they were taken for brief flights until fuel supplies were exhausted. One native inquired as to the price of the plane. When he was informed that it would be worth about a thousand fox skins he solemnly stated that he thought he might buy one.

During January of 1929 a call for assistance came in from Fort Vermilion where an epidemic of diphtheria was raging. Many were ill and several were dying. Antitoxin was urgently needed. The aeroplane was their sole hope. The only one not in use had wheels, not skids, and was an open type. "Wop" May and his partner, Vic Horner, decided to try to get through in spite of forty below zero weather, winds and snowstorms. They reached the Fort with the precious cargo but "Wop" was so nearly frozen that he had to be lifted from the plane when he arrived. Such mercy flights soon became common to the bush pilots.

Many times these pilots were called upon to assist the R.C.M.P. in the search for missing men or for those who had escaped from the long arm of the law. The most famous of these adventures was the hunt for a mad trapper, across the Arctic waste lands. "Wop" helped in the hunt. His work was to keep track of the trapper and report his whereabouts to the R.C.M.P. He watched the battle from the air and when one of the mounties was wounded it was "Wop" May who flew him to the hospital at Aklavik.

These pioneers of the air watched the mineral development of the north from its very beginning. Leigh Brintnell was the pilot who carried the discoverers of the Eldorado Radium mines into Great Bear Lake. Soon Leigh and his companions were flying prospectors into Goldfields, Yellowknife and various parts of the Yukon.

With the development of air transport Edmonton has become not only an important passenger airport but also one of the largest air freight centers in the world. As of old it is still "The Gateway to the North".

Daily flights to many parts of the north and Trans-Canada flights link Alberta with other parts of the Dominion and other parts of the world.

EDUCATION IN ALBERTA

Education was begun in our part of what was called the Northwest Territories by the missionaries who came to Christianize the Indians. Probably informal lessons were given as soon as there were any missionaries but the first school of which we have any record was begun in 1862 by Father Lacombe with Father Scollen in charge, to teach the children of Fort Edmonton. There were twenty pupils mostly belonging to the clerks and servants of the Hudson's Bay Company. A small single-roomed building inside the walls of the fort became the school. By 1873 there were ten mission schools in the territories.

Two years after the Edmonton school opened George McDougall established a school near Morley west of Calgary. In 1877 a school was built at Macleod but it evidently had a short life for in the first issue of the Macleod Gazette of 1882 attention was drawn to the lack of school facilities. In 1883 the first Calgary school was opened in the basement of the Methodist Church and to it came all the children both white and Metis from the district.

Prior to 1884 schools were maintained by private subscription or by some religious body. In 1884 the government of the Northwest Territories took charge of education. The burden of supporting the school had fallen until this time on a few people. With this move taxation for educational purposes would be general.

In Edmonton the Hudson's Bay officials and some of the older citizens complained at the prospect and in fact there was, according to the records, a "howl of indignation". There followed an election to décide whether Edmonton would have a government school or not. The Hudson's Bay Company brought in many of their representatives from outlying areas to vote on the matter and on the day of the election they were pressed into service. They were four or five votes ahead when Donald Ross of the Edmonton Hotel persuaded his boarders to give a helping hand by voting for the school. It is said that there was only one fur coat—a coonskin—among them, and each boarder in turn hurried up the hill in the fur coat to vote. Donald Ross' boarders saved the day. The vote was 54 to 43.

The petition was delayed in being sent to Regina so that Edmonton was given the School District Number "7" instead of becoming S.D. No. 1 as it should have been. The numbering of the school districts was retained after the province was formed and as a result Edmonton is still known as S.D. No. 7. A Mr. Matthew MacCauley was chairman of the board and Mr. Jack Harris the first teacher.

In Calgary less opposition was experienced. Howard Douglas became the first chairman and J. W. Costello the first teacher.

In 1887 a board of education for the Northwest Territories was established. Eight members were on the board. They were to meet four times a year and were responsible for the operation of the schools. By this time the seat of government for the Northwest Territories was at Regina.

In 1879 the federal government voted $4,000 for education in the Territories, to be used partly for the building of schools and partly for the payment of teachers' salaries.

To begin with school boards chose their own texts and courses of study but in 1890 legislation was framed to unify the systems and to provide common text books. Government responsibility, too, was assumed for the curriculum.

There were a large number of French speaking Catholic schools to begin with but as time went on the proportion of French people was less and in 1889 the dual language was discontinued both in the Northwest Legislative publications as well as the Territorial education.

In the Education report of the Territories for 1890 in the Calgary Public Schools there were 235 pupils in attendance and schools were open for 206 days. Compulsory education had been established for children between the ages of seven and twelve, for a minimum of three months per year.

In the Northwest Territories Act of 1875 it had been provided that sections 11 and 29 in each township be set aside for schools. These were handled by the Dominion government and sold at auction for the benefit of education. The proceeds from the sales were invested and the interest used to develop educational facilities.

When Alberta became a province in 1905 there were 561 school districts within its boundaries and 28,700 pupils in attendance. The system of school administration in use under the Territorial government was continued. As settlements were made school districts were organized. When fresh settlers arrived and took up homes beyond the boundaries of the original districts they found the distances to the earlier schools too great and as a consequence organized new districts. The result was a system of local districts in which the first formed were usually the largest and contained the best land. Districts formed later were quite often made up from areas left over and comprised land of relatively lower value. The result was that there were large districts of good land with low rates of taxation and at the same time small districts comprising poor land with high rates of taxation. This was a decidedly inequitable situation.

In rural districts too there was little provision made for secondary education but it was felt that the rural child was just as much entitled to a high school education as his city cousin.

Following the years of 1929-34 money was lacking for school libraries, furniture, school buildings and equipment and so it was in April of 1934 that a committee was appointed by the legislature to study rural education in Alberta.

In 1935 the committee recommended that the Department of Education study the question of the larger unit of administration in an effort to evolve a plan that would bring the rural schools to a higher degree of efficiency. Later that year the School Act was amended giving the Minister authority to constitute any two or more school districts into a union of districts to be administered by an elected or appointed board.

In 1936 the legislation in detail was passed for the procedure to be followed in establishing the larger units.

The experiments which the government made in the formation of such larger units were successful and it seemed that the opportunities for rural children would be increased by such organization.

In 1950 the County Act was passed to permit the bringing of all forms of local government under one. This meant that municipal boards, hospital boards and school boards and districts of the above would be unified. It made for better services for the schools. Previously it had sometimes happened that a school division was partly in one municipality and partly in another. This produced some problems. The difference in road maintenance affected the operation of school bus services for instance. Up to the present (Spring 1959) twelve counties have been formed in Alberta.

Statistics

At the present time in Alberta, (Spring 1959) there are over 256,185 students in schools. In ten years this has been an increase of over 50%. Soaring birth rates after World War II were considered to be temporary but instead have continued. The increase has been paralleled by prosperity with the result that new regular classrooms with other facilities such as industrial arts shops, gymnasiums, etc. have been built. During this ten-year period, 5,413 classrooms were prepared for use at a cost of over one hundred and thirty million dollars.

Types of Schools

The Provincial Institute of Technology and Art in Calgary renders valuable service not only to the young people of Alberta but to the Western provinces for there are few such schools in Canada.

Courses are given in a wide variety of subjects and include junior engineering, aeronautical engineering, automotive service, clothing and design, drafting, land surveying and in crafts such as pottery, ceramics, industrial design and advanced fine art.

Students working toward the degree of Bachelor of Education in Industrial Arts, at the University of Alberta, take a number of industrial art courses at the Technical Institute.

Junior Colleges

At Lethbridge in 1957 a Junior College was opened following the passing of a Junior Colleges Act in that year. The college is supported by government grants and public taxes. Colleges may, under the act, be built in any part of Alberta where conditions are favorable and the school authorities wish to initiate and support such an institution.

A Junior College may develop its own pattern of courses. One of these, as is the case in Lethbridge, might be a pattern of junior university courses enabling the students to transfer to the university with a year's standing in Arts and Science, Law, Medicine and Dentistry or the equivalent of a first year Bachelor of Education degree.

The second type of course pattern might provide vocational training in commerce, shop or agriculture. The third type may provide services to adults in short courses, cultural classes, or any type of study which will be of interest and value to the community.

Physically Handicapped

Alberta provides for handicapped pupils in a variety of ways. The School for the Deaf opened in 1956 and has 138 boys and girls in attendance in 1958-59. Classes through to Grade IX are held for these children and a full physical and recreation program is carried on as well.

Alberta blind children go to other provinces to school. The Department of Education pays for their transportation and maintenance all the time they are away.

Day school instruction is given to children by the Edmonton and Calgary Public School Boards. Instruction by teachers who visit homes where children are too seriously handicapped to attend school is provided by school boards. This service is for children suffering from the effects of heart ailments, poliomyelitis or muscular dystrophy. Government grants assist in providing this service.

The Correspondence School

Since 1923 the Correspondence School Branch of the Department of Education has been giving instructional services to tens of thousands of isolated Alberta students and to others who live in the N. W. Territories or in foreign countries. From 1939 on courses have been offered to those who wished to study at the Senior High School level. Many of these students have entered university and continued their studies with distinction.

The University

In 1906 when the first Legislature of the Province was in session the Premier, also the Minister of Education, who was the Hon. A. C. Rutherford introduced a bill to found the Alberta University. In 1907 the first president of the university was chosen, Dr. Henry Tory. He, together with four other professors, and a group of forty-five students began classes in the old Duggan Street School, now called Queen Alexandra School on 106 Street and 77 Ave.

There are at present fifty-one teaching departments in the Faculties of Arts and Science, Agriculture, Dentistry, Education, Engineering, Graduate Studies, Law, Medicine and Pharmacy, and the Schools of Commerce, Household Economics, Nursing, Physical Education and Physiotherapy. Registrations totalled 6,000 in 1958-59.

There are campuses in Edmonton, Calgary and Banff. The Edmonton campus is most fully developed. The Arts, Medical, Agriculture, Engineering and Education Buildings, are the main teaching establishments and in Calgary the old normal school, plus temporary frame structures, houses the classes.

The Banff School of Fine Arts began operating in 1933 as a result of a grant from the Carnegie Institute. It has been envisaged as a cultural focal point for all of Canada and the response to the establishment of such a school has been very great. The School operates mainly throughout the summer months and has a number of splendid buildings, chalets, dormitories and administration buildings. A building program has been going on for some time and it is estimated that there will be accommodation for 1,000 students when the program is complete.

It is almost 100 years since the first school began in Alberta. Allowing 33 years to a generation we have in Alberta, in three generations, graduated from a single log school to a complex system of education comparable to any in the world.

ALBERTA'S CLIMATE

The Chinook Winds

Various parts of Alberta benefit by the Chinook winds, but the southern part experiences the Chinook most often. In the south east corner of Alberta the climate is very dry, with an average annual rainfall of about 13″, running up to about 16″ in the foothills area.

Southern Alberta is characterized by bright cloudless skies, clear air, rolling prairie and Chinook winds. The summer Chinook causes excessive evaporation and drifting of the soil and as a result is not as welcome as the winter Chinook which often causes a rise in temperature of 60°F.

The warm, moisture-laden winds which blow from the Pacific begin to rise when they reach the mountains and cool as they rise, according to what is called the adiabatic rate, at about 5½°F. per 1,000 feet. This cooling is somewhat offset by the release of latent heat during the condensation of moisture into the raindrops which fall on the windward side. (This rate is thus cut to about 3°F. per 1,000 feet.)

When the air starts down the leeward side of the mountains the resulting pressure increases the temperature at the same rate of 5½°F. per 1,000 foot drop, and the dry winds lick up every bit of snow or other moisture. This semi-desert area on the leeward side of mountains is often called a rain shadow. In Alberta it is not as pronounced as it is in Nevada where the air must descend to sea level, and to below sea level in Death Valley. There the heating causes the great American desert zone which covers all of Eastern California and Nevada.

The warm Chinook winds may come in short gusts or blow steadily for hours. They may blow for several days in a regular gale. Then even deep snow on the plains disappears and the roads become hard and dry. It was for this reason that the buffalo liked the Bow Valley and all the tributaries of the South Saskatchewan where the Chinook uncovered the thick grass and left a supply of fresh water in all the draws. It was also for these reasons that later the Bow Valley became the center of the great ranching industry.

TEMPERATURE, PRECIPITATION AND SUNSHINE FOR ALBERTA

Station			TEMPERATURE							PRECIPITATION				
			Average Annual				Extremes							
	Elevation	Length of Record	Mean Daily Maximum	Mean Daily Minimum	Mean Daily	Average Annual Highest	Average Annual Lowest	Highest on Record	Lowest on Record	Average Annual Total Precipitation	Average Annual Total Snowfall	Average Number of Days with Rain	Average Number of Days with Snow	Average Number of Days with Precip.
	Ft.	Yrs.	°F	°F	°F	°F	°F	°F	°F	In.	In.			
Beaverlodge, Alta.	2484	31	45.9	24.7	35.3	90	-38	98	-54	17.19	70.1	76	57	127
Calgary, Alta.	3540	55	50.8	26.2	38.4	91	-33	97	-49	16.65	50.0	57	47	101
Edmonton, Alta.	2219	56	47.8	25.4	36.6	89	-41	99	-57	17.38	46.4	73	62	133
Medicine Hat, Alta.	2365	55	53.9	29.9	41.9	99	-37	108	-51	12.81	35.6	56	45	100
			as compared to											
Saskatoon, Sask.	1600	38	45.5	22.9	34.2	95	-41	104	-55	14.55	37.2	58	47	103
Vancouver, B.C.	45	41	56.8	42.6	48.7	86	13	92	2	57.38	28.8	168	12	172

AVERAGE MONTHLY AND TOTAL ANNUAL DURATION OF BRIGHT SUNSHINE IN HOURS

	Yrs. Obs.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Beaverlodge, Alta.	17	78	114	153	218	264	254	302	257	173	135	83	69	2100
Calgary, Alta.	17	109	133	159	194	254	239	316	265	191	165	118	102	2245
Edmonton, Alta.	33	79	119	169	222	253	250	303	269	188	153	98	75	2178
Medicine Hat, Alta.	33	90	113	152	206	250	271	350	293	200	161	107	81	2274

LENGTH OF GROWING SEASON

Station	Average Date of Frost		Average Frost Free Period
	Last in Spring	First in Autumn	Days
Beaverlodge, Alta.	June 4	Sept. 4	92
Calgary, Alta.	June 1	Sept. 6	97
Edmonton, Alta.	May 30	Sept. 6	99
Medicine Hat, Alta.	May 12	Sept. 19	130

as compared to

Station	Average Date of Frost		Average Frost Free Period
	Last in Spring	First in Autumn	Days
Saskatoon, Sask.	May 26	Sept. 9	106
Vancouver, B.C.	Apr. 3	Nov. 4	215

Statistics given by the Meteorological Division, Department of Transport, Ottawa.

INDUSTRY IN ALBERTA

The vast reserves of natural gas and oil have encouraged dependent industries to spring up within the boundaries of Alberta. The growth of primary industries (e.g. agriculture, fishing, etc.) and secondary industries (e.g. manufacturing of chemicals, flour, meat packing, etc.) has resulted in enlarged service industries (e.g. transportation, communication, government services, etc.) and there has resulted a complex picture of expanding economy which changes from month to month and from year to year.

Facts regarding Alberta's industrial growth will probably be out of date shortly after this book is published and the most important aspect we can therefore emphasize is the trend in our economy. This trend has been most apparent over the past twelve years.

In 1947 production in Alberta followed this pattern:

Main Industries	*$'000*		*Percentage of whole*
Agriculture	286,000		55.6%
Forestry	4,500		1.0%
Fisheries	500		.1%
Trapping	1,500		.3%
Mining	55,000	(oil)	11.5%
Electrical Power	10,000		2.0%
Manufacturing	89,000		18.6%
Construction	33,000		6.9%
Total	$479,500		100%

These figures are typical of those for the rest of Canada in that agriculture was the leading industry.

In 1957 the picture had changed to the following for Alberta:

Main Industries	*$'000*		*Percentage of whole*
Agriculture	360,000		24.3%
Forestry	11,000		.8%
Fisheries	600		.1%
Trapping	1,000		.1%
Mining	410,000	(99% oil)	25.7%
Electrical Power	35,000		2.4%
Manufacturing	305,000		20.6%
Construction	385,000		26.0%
Total	$1,507,600		100%

Agriculture had declined in importance until it represented only one-quarter of the value of production, nevertheless there had been an increase in value of agricultural products of about $75,000,000.

Oil and the industries based on oil and gas occupy nearly half of our production wealth.

At the same time our population figures have changed. In 1946 the population was 803,000 and in 1957 1,160,000, an increase of 44%. Along with the increasing population came a trend toward urbanization. In 1941 62% of the population was in rural communities but it fell to 43% in 1956. The ten cities comprise 77% of the urban population or 44% of the total population of the province. In 1956 over one-half of the population of Alberta was within one hundred mile radius of Red Deer. Industrialization has been the major cause of the increase in population.

How Industries Change the Population Picture

For every additional 100 workers in a community there will be on the average:

1. An increase of over 400 people in the community
2. An increase of about 60 school children
3. About 125 new households
4. About 110 more workers employed in service industries
5. Three more retail establishments
6. $900,000 more retail sales each year.

An economy based on a single commodity is unstable. It is open to upsets from world markets, climate, crop damage from frost, disease, etc. Canada's economy was based on wheat from the time that furs ceased to be the main export commodity. Although the hazards were lessened somewhat by the change to mixed farming (See History of Alberta Ranchlands) and production of cattle and hogs for export, nevertheless the whole economy of the west rested upon agriculture. The increase in the variety of products exported has stabilized the economy of our province.

We shall consider briefly some of the newer products that have been available for export from the province as a result of the natural gas and oil of recent years.

Place	*Company*	*Sources of Hydro-Carbon Raw Materials*	*Principal Product*
Edmonton	Canadian Chemical Co. Ltd.	Natural gas and refinery streams	Cellulose-Acetate
Edmonton	Canadian Industries Ltd.	Natural gas	Polyethylene
Fort Saskatchewan	Sherritt Gordon Mines Ltd.	Natural gas	Ammonia
Calgary	Consolidated Mining & Smelting Co.	Natural gas	Ammonia
Turner Valley	Royalite Oil Co.	Natural gas	Sulphur
Jumping Pound	Shell Oil Co. of Canada	Natural gas	Sulphur
Medicine Hat	Northwestern Nitro-Chemicals Ltd.	Natural gas	Ammonia
Pincher Creek	British American Oil Co.	Natural gas	Sulphur
Fort Saskatchewan	Inland Chemicals	Natural gas	Sulphuric Acid

Pulp Mill at Hinton

Alberta Gov't Photograph

It is interesting to note that the Sherritt Gordon Mines which began operations at Fort Saskatchewan in May 1954 bring in nickel ore from Northern Manitoba to be refined and Inland Chemicals provide the nickel plant with sulphuric acid needed for this refining. The chemical plant went into production in 1955 and produces 100 tons of sulphuric acid per day from natural gas. The by-product from the Sherritt Gordon refinery is a fertilizer, ammonia sulphate, which is produced at the rate of about 90,000 tons per annum. The markets for this fertilizer are world wide.

It has been announced by the Dow Chemical Company of Canada that they will be opening a plant at Fort Saskatchewan within the near future which will produce caustic soda, chlorine and phenol. Other plants under consideration will produce plastic foam, hydrochloric acid and glycol.

The basic raw material for caustic soda and chlorine is salt which is found under the soil at Fort Saskatchewan. Electrical power produced by natural gas is used to separate the sodium from the chlorine in the salt. The pulp and paper industry use vast quantities of both these products for the bleaching of the wood pulp to a desirable color. There are many other uses for chlorine also, such as water purification and countless household uses.

Hydrochloric acid is produced by the combustion of hydrogen and chlorine to form the gas hydrogen chloride. It is used in Western Canada for the acidizing of oil and gas wells and has many other uses.

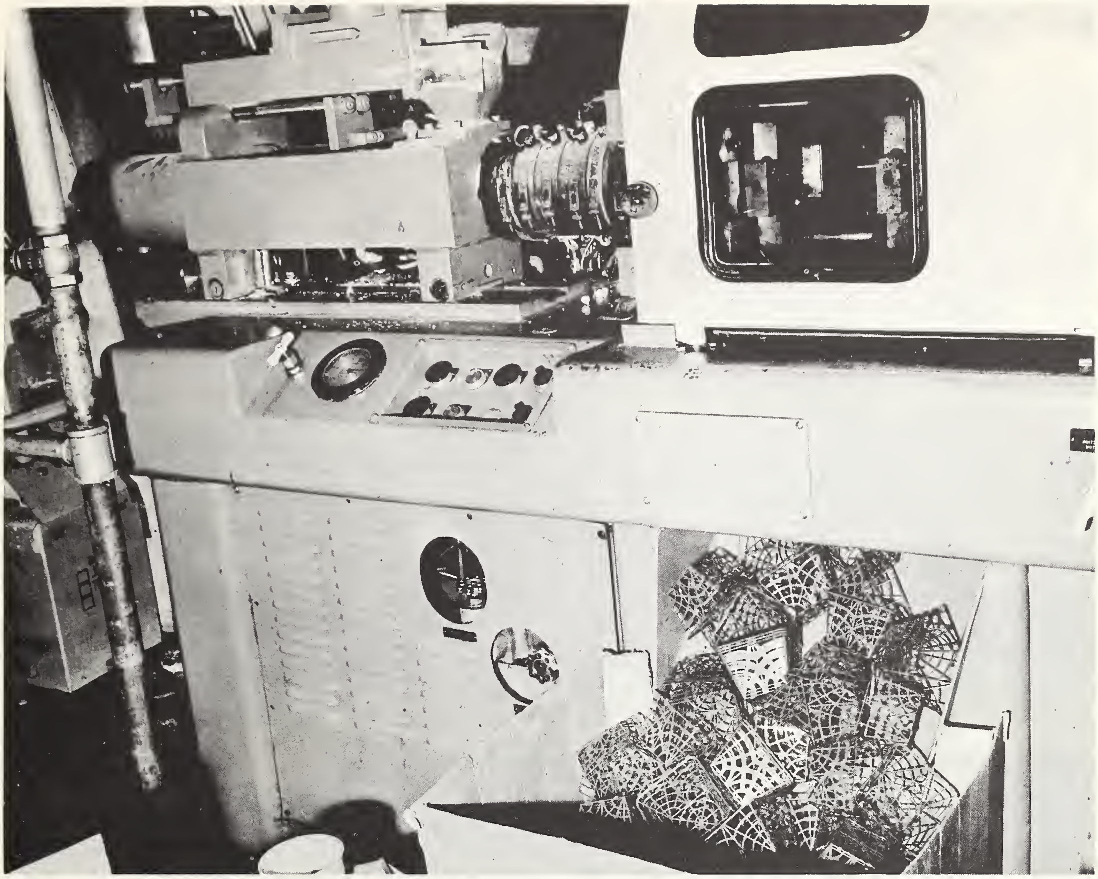
Glycols are produced from ethylene which in turn comes from liquid petroleum gases. This material is used in the manufacturing of antifreeze for cars.

Plastic foam is really a polystyrene foam which has the advantage of light weight and rigidity and is used for insulation in construction, in refrigeration, toys, etc.

Another new type of plant also located at Fort Saskatchewan is manufacturing fibre glass. A glass rod imported from Great Britain is spun into 400 miles of glass fibre that is so fine and elastic that it can be woven into a fabric, used in insulation. The company hopes to melt its own glass within a short time. They have a twenty-one year lease on a sand deposit of 11,000 acres, seven miles from Peace River. The sand is 12 feet deep and will be removed by strip mining.

The Yarn Department at Canadian Chemicals

Alberta Gov't Photograph



Plastics at the Polychemical Plant *Alberta Gov't Photograph*

During war time sulphur which originally came from the southern states and was used in the pulp and paper plants in Canada became very scarce. Newsprint is made from sulphite pulp and as there is no substitute for elemental sulphur to treat wood fibres, west coast pulp and paper interests sponsored the construction of a sulphur reclaiming plant from natural gas at Jumping Pound, in Southern Alberta. Scrubbing plants have since been built in many parts of the province, many of which produce sulphur, propane, etc. During war time there was also a need for sulphur for the refining of uranium at Beaverlodge, Saskatchewan. The sulphur was shipped to Waterways by train and then loaded on barges and sent down the Athabasca and across the lake to Beaverlodge.

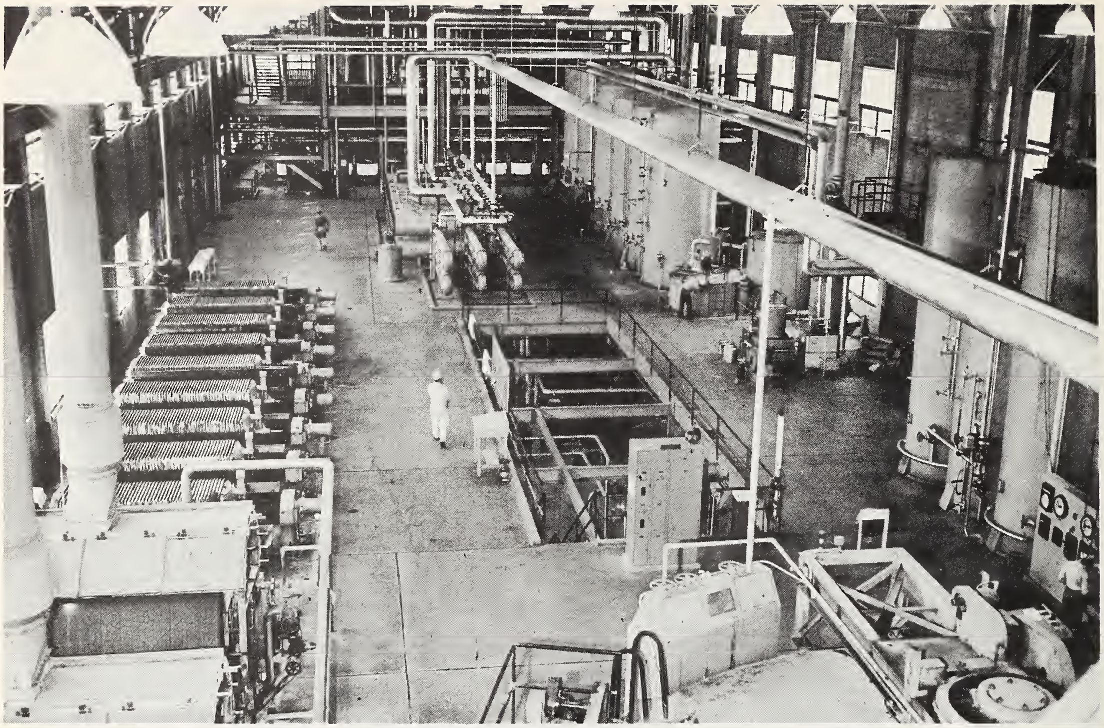
The following gas pools have varying amounts of sulphur, propane, etc.

	Methane	*Ethane*	*Propane*	*Butane*	*Nitrogen*	*Hydrogen-Sulphide*
Medicine Hat	95.7	.2	.1	.1	3.8	
Jumping Pound	83.9	4.0	1.0	.7		3.6
Pincher Creek	76.6	3.1	1.3	.8	1.4	11.2
Leduc-Woodbend	66.9	16.8	8.8	2.9	2.8	

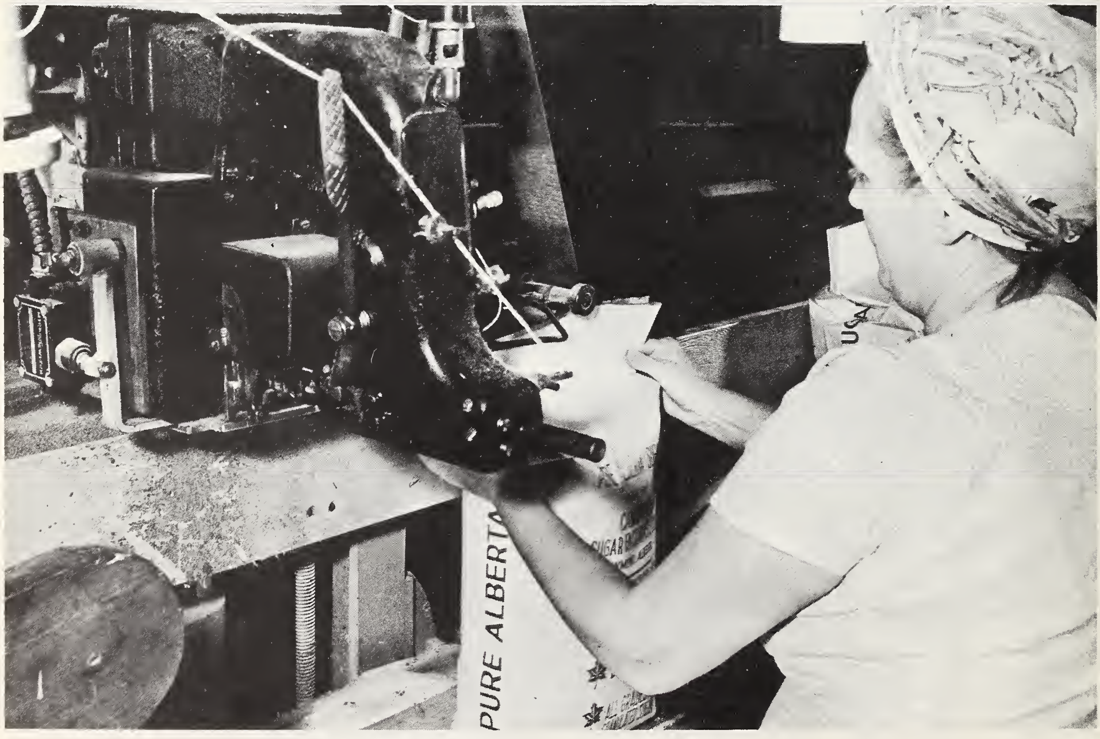
In 1956-57 a pulp mill went into production at Hinton, Alberta. It is the first pulp mill in the province in spite of the fact that Alberta contains 10% of the forest of Canada. Another pulp mill has been suggested for the Whitecourt area. However, much of the forest is inaccessible at the present time and mills can be located only on the fringe of the forest. Alberta at present is producing about 2% of wood products made in Canada. This will increase as the pulp and paper industry grows. The low cost natural gas and sulphur will encourage the growth.

This gives us a picture of some of the newer manufacturing industries but does not give by any means a picture of all manufactured products. Cement and glasses and clay products manufactured in the province in 1957 had a value of $33,000,000 as compared to $18,000,000 for pulp and paper products.

Food manufacturing in Alberta which includes such industries as flour milling, sugar refining, vegetable canning, and meat packing products totalled $309,000,000 in 1957 while the chemical manufacturing totalled $43,000,000. The trend would indicate that the chemical industry will grow very greatly in the next few decades.



Sugar Factory, Taber



Sugar from Factory at Taber

Alberta Gov't Photograph

WILD FLOWERS OF ALBERTA

Wild Flower Sanctuaries

Wild flower sanctuaries have been established in many parts of the United States. In some cases a wood lot belonging to a town or county has been set aside as a place where wild flowers will be encouraged to grow. The bigger trees have been taken out and the shrubs thinned so that flowers can increase.

Wild flower gardens have become quite popular among flower lovers, but the Wild Flower Preservation society points out that they are rarely successful. The wild flowers are taken from their native habitat and put into cultivated ground where the plants are not at home and they slowly die. The Society feels that only when an area is to be broken up for agricultural purposes or used for real estate should plants be lifted and transplanted.

The important thing is for children to realize that indiscriminate picking of *any* flower is not a good idea and that in the case of some, if the roots are disturbed, the plant will die; also that in the case of bulb-like roots if the leaves are picked the plant will be unable to survive because the food cannot be manufactured and stored in the bulb for the next year's use.

Flowers should be left to color the landscape and give pleasure to every passer-by. In this way they will best fulfil their use in the world.

SOME FLOWERS OF ALBERTA

Western Red Lily

This is a very showy erect plant which grows from 6 to 24 inches high from a white scaly bulb. The flowers are up to 3 inches long with sepals and petals of a red or orange color with black spots. The leaves are fairly long with the lower ones alternate and the upper ones whorled. The lily is found in moist meadows, but is becoming scarce from much picking which disturbs the bulb-like root. (The Prairie Lily is the floral emblem of Saskatchewan.)

Wild Rose

This plant varies from a low shrub to a large bush and it generally has a prickly stem. The leaves are composed of small leaflets. The flowers, which are usually pink, are showy and fragrant. The fruit is a "hip" which contains numerous seeds. (This flower is the floral emblem of Alberta.)

Shooting Star

This is a perennial herb with leaves at the base. The nodding flowers at the end of the leaflets are very showy with pink to purple petals swept back from the stamens of which there are five bearing purple antlers united at the base. This plant was quite common in wet or acid sloughs but is becoming rare. It should be protected from over picking.

Black-Eyed Susan

This is a somewhat coarse, hairy biennial which grows from 12 to 20 inches in height. The leaves are from 2 to 6 inches in length and are ribbed and hairy. The orange or yellow flowers are borne singly on long stalks. They are from 2 to 3 inches across with dark brown centers and have from 10 to 20 ray florets. They are most often to be found in open woodland areas and may be picked in moderation.

Indian Paint Brush

There are eight species of this plant in the western provinces. It may be an annual, biennial or perennial plant. It is a part parasite as it lives to some extent on the roots of other plants. The bracts or leaves of the flowers are usually red or yellow in color. The.common variety is a perennial from 1 to 2 feet high, with oblong leaves 1 to 2 inches long: The flower is about 1¼ inches long with a fine down and of a greenish color tinged with crimson. This flower may be picked without danger of extermination.

Prairie Aster

There are many varieties of this plant, which is known in other parts of the world as the Michaelmas Daisy. (This name no doubt derives from the fact that the plant blooms late—in late summer or early fall, and Michaelmas Day falls on September 29.) It is either a perennial or biennial with alternate leaves and a bluish purple or white head. The petals are numerous and the clusters of flowers grow on the various branches of the plant. The prairie aster is quite common.

Lady's Slipper

This perennial plant has been included in this list of flowers because it is becoming increasingly rare and should be protected. There are a number of varieties of this branch of the orchid family. For the most part the small yellow Lady's Slipper is the most common in Alberta, but occasionally it is possible to find the Northern Lady's Slipper which is white or pale lilac with purple spots. The small yellow Lady's Slipper grows from 8 to 15 inches high and has a large yellowish flower marked with purple lines. It is very fragrant. It grows in rich damp soil often in poplar woods, and the Northern Lady's Slipper in coniferous woods.

Fireweed

This is a strong perennial plant from 2 to 5 feet high with alternate pointed leaves with lateral veins near the margins. The lower side of the leaf is paler than the upper. Flowers are from pink to purple and grow in a terminal cluster from the central stalk to which each flowerlet is attached by a short bract. The seed pod which often grows to 3″ long spreads numerous white-tufted seeds. Fireweed grows quickly in burnt over forest areas and is also found along road sides and in waste places. It is found from coast to coast all over North America. Livestock eat it and it provides a good source of honey for bees.

Crocus Anemone

This is an early spring flower growing from a thick tap root. The flowers appear before the leaves on an erect silky grey stem from 3 to 8 inches high. The thin leaves grow quite low on the stem. The flowers are mauve, blue or white and measure from 1½ to 2½ inches across. The seed stems are quite tall and feathery. The crocus is sometimes a trouble to sheep ranchers because of its poisonous properties. It seems to grow most abundantly on overgrazed pastures. It is usually the first spring flower to appear on the prairies.

Buffalo Bean (Golden Bean)

This is a perennial plant from 6 to 20 inches high which often grows in large patches. The leaves are covered with silky grey hairs. The flowers have ten separate stamens and are a very bright golden yellow, about ¾ inch long and grow in fairly thick clusters from the central stalk. The pods contain from ten to thirteen seeds which should not be eaten. This is an early blooming plant which is very bright and colorful. It is found in great masses in the southern part of the province and in sandy parts in the north.

TREES OF ALBERTA

The boreal forest or the great northern forest is the largest in Canada, covering an area of 1,887,000 square miles. It extends in a wide curving belt from Newfoundland to the foot of the Rockies and north to the Yukon. In Alberta it includes all lands north of the Saskatchewan River. The principal trees in the Alberta part of the forest are: white and black spruce, balsam fir, tamarack, white birch, trembling aspen and balsam poplar.

We often divide trees into the deciduous group and the evergreen, that is those that drop their leaves and those that keep them. The larch or tamarack, however, is a conifer which loses its needles. It is better to divide them thus: broad leafed and coniferous, or cone-bearing. The foliage of the broad leafed trees which in Alberta are deciduous turns color and falls in order to conserve the moisture that is in short supply in winter. The needle-leafed trees are wax covered and lose less water, and thus retain the needles through the winter, with the exception of the tamarack.

Leaves take carbon dioxide from the air and give off oxygen. In the leaf food is made from the elements. Water is absorbed from the soil thus providing the plant with hydrogen and oxygen. From the air the tree absorbs carbon dioxide, and now has the three elements necessary to make carbohydrates, that is carbon, hydrogen and oxygen. From the soil it also absorbs minerals which are needed to make proteins. Inside the leaf, cells containing chlorophyll make carbon dioxide and water into carbohydrates, but this change cannot take place unless the leaf has light. The sunlight penetrates through the clear skin of the leaf and causes a chemical change. This changing of carbon dioxide and water into carbohydrates which are then changed into proteins giving the tree the food it needs to live and grow, is known as photosynthesis. This is one of the wonders of nature and so far man has not been able to simulate nature in the laboratory. Leaves are the only living things that make food from the elements, and they are the only living things that make more oxygen than they use. (Oxygen is released as a by-product.) We depend on leaves for our food and for our air, because if there were no leaves the carbon dioxide in the air would be of dangerous proportions.

Trees need huge quantities of water. The root hairs absorb it from the soil, and the network of roots helps to hold soil and so prevent soil erosion. The floor of a forest contains a spongy cover made of leaves partly decayed and freshly fallen which acts like a reservoir holding tons of water. The roots of the trees open up the ground to let the water in and so raise the water table. Forests prevent floods and minimize the effects of long dry spells.

Some trees live longer than any other living thing. Douglas Firs in British Columbia may live over one thousand years: one Douglas Fir grew four hundred and seventeen feet above the ground. The age of a tree can be determined when the tree is cut down. The annual rings left by alternate growth of summer and winter wood may be counted. The rings give the complete history of the tree. Growth is slight in periods of drought and fast when conditions are favourable.

Black Spruce

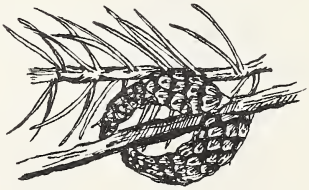
This tree ranges over the whole of the Boreal Forest Region: it will grow under trying conditions and is one of the most northerly growing trees. Common in muskegs in the Northwest. In Alberta it averages only 40' in height and is therefore not important for lumber, although it is valuable for pulpwood. The bark is thin with numerous scales. Cones are egg shaped, ½″ to 1½″ long, grey-brown with notch edged scales and they stay on the tree for several years. The needles are ¼″ to ¾″ long, bluish green in color and tipped with a sharp point.

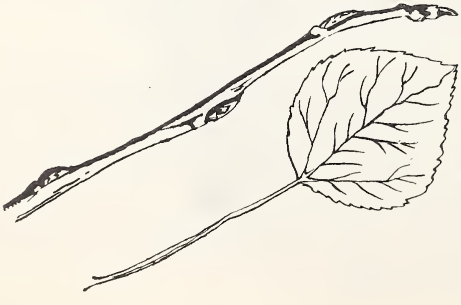
White Spruce

This tree is one of the main species of the Boreal Forest Region, and reaches the northern limits of tree growth. It attains its greatest height (up to 150') on the Eastern slopes of the Rockies. It grows best on well-drained, moist gravelly soil, but also on rocky slopes. It can stand shade and grows best with a nurse crop. The bark is thin with grey brown scales. The rather narrow needles, ⅓″ to ¾″ long are blue green with a pungent smell. The cone is about 2″ long, pale green tinged with red with scales that bend easily and are not ragged. They fall the following year. The wood is light, soft and easily worked. Among numerous other uses it is used for musical instruments because of its good resonance qualities.

Jack Pine

This is a common tree in the center of the Boreal Forest Region: it likes plenty of light, and can survive on sandy and rocky soil. It reaches its western limit near the foothills west of Edmonton, and is then replaced by the Lodgepole Pine. Sometimes the Jack Pine can reach 90′ but is generally much smaller. The bark is thin with ridges with thickish scales. The needles which are two to a bundle are of a dark yellow-green often spread away from each other; they are sparse and scrubby. The cones are incurved and pear-shaped, from 1½″ to 2″ long and remain closed on the tree for many years. Many trees are destroyed in forest fires, yet the seed life is not killed by fire. When the cones are roasted in the heat the scales open and seed crop falls out. The light colored wood works and finishes well, and produces a good grade of common lumber useful for a variety of purposes.





Aspen (Western Trembling Aspen)

The aspen is one of the most widely distributed trees in Canada, but does not go quite as far north as the two spruces. It grows best on well-drained loam but can grow on a variety of soils. It can grow up to 90', but in Alberta it is generally considerably smaller. The smooth thin white bark of young trees becomes ridged and darker colored, especially at the base where it is nearly black. Leaves, which are alternate, are rounded with a pointed tip and are on long stalks. The flowers are in catkins. The aspen reproduces quickly from root suckers and so comes in fairly abundantly after forest fires. It is the beaver's favorite food. The wood is light in color but not very strong or durable. In the Prairie Provinces a great deal is used for firewood.

Balsam Fir

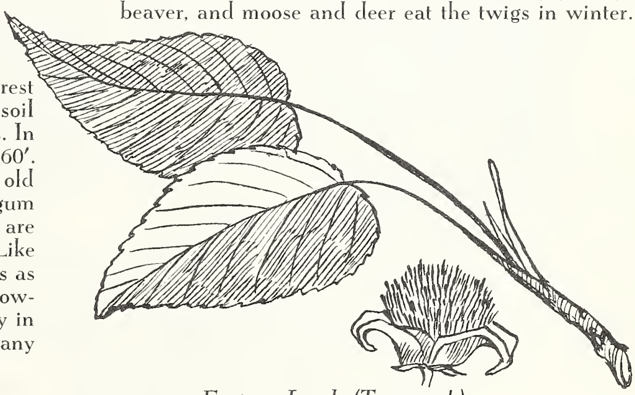
This is a very common tree throughout Canada. In Alberta, where it grows in the north, the tree attains a height of about 40′. It adapts itself to various soils and is easily distinguished by the regular whorls of horizontal branches. The bark is reddish brown with many resin blisters. The needles which are never sharp tipped are fairly short and fragrant. The cone is greenish purple and varies from 2″ to 4″ in length. The wood is in many ways similar to that of the white spruce. It is a good general purpose wood. The blisters yield "balsam", a sort of resin used in the manufacture of varnish.

White Birch

The white birch is widely distributed within the Boreal Forest Region and grows further north than any other broad leafed tree. It requires a considerable amount of light, and in Alberta reaches a height of about 20′. The bark is smooth and peels into papery thin layers, creamy white on the outside. The oval leaves have serrated edges, are alternate and about 2½″ long; they are somewhat sticky underneath. The slender catkins are greenish with some red, and the fruit is a small two-winged nut in a cone-like body from which the scales fall away, thus releasing the nut. The white birch is often found in large stands after a forest fire, as it thrives in the light. It is a medium hard wood and is especially suitable for small-turned articles. The Indians used the bark for their canoes, the inner bark is enjoyed by the beaver, and moose and deer eat the twigs in winter.

Balsam Poplar (Balm of Gilead)

This tree is found throughout the Boreal Forest Region and is most common on rich moist soil such as on the banks of streams or sandbars. In Alberta it reaches a height of about 50′ to 60′. The bark is light brown but turns grey in old age. Winter buds are soaked in a fragrant gum and at first the leaves are gummy too: they are 3″ to 5″ long and are oval to heart-shaped. Like many other poplars, the Balm of Gilead acts as nurse tree for spruce seedlings. The quick growing wood is almost ideal for pulp, especially in the manufacture of magazine stock. Many boxes and crates are also made from it.



Eastern Larch (Tamarack)

This tree which reaches north to the tree line in the Boreal Forest Region is a member of the Larch family. These trees which bear cones are deciduous, in fact they are the only deciduous conifers in Canada. The thin scaly bark is bright reddish brown: the light green needles grow in bundles. The cones are small being about ½″ to ¾″ long with about 20 very bright scales. The tamarack is the source of a very durable hardwood often used for bridge timber and floorings, telegraph poles and railway ties. The Indians used its roots for sewing together the strips of birch bark used for their canoes. The larch is susceptible to attack by the sawfly and there was a serious epidemic early in this century.

Lodgepole Pine

The Lodgepole is not a tree of the plains but rather of the mountains. It is the main tree at Jasper and Banff. It grows very slowly. In the zones where the Jack Pine and the Lodgepole meet there is a great deal of hybridizing. The bark of the Lodgepole is thin and the scales are decidous from old trunks. The dark green needles grow in bundles of two and are rather twisted, growing to about 2″. The cones vary from ¾″ to 2″ in length and are pear shaped with prickles at the base. As with the Jack Pine, the cones release their seeds with the heat of a forest fire and the new stands of trees are therefore of the same height having started to grow at exactly the same time. This makes them ideal for the lumber industry. The pole-like trunks have served Indians, pioneers and modern lumber men equally well.

MAMMALS OF ALBERTA

Knowledge of the wild life of our forests and prairies adds to our enjoyment but the knowledge is also of practical value. Some animals need to be encouraged, others need to be controlled; some are of value for sport and others for trapping. In order to discuss conservation it is necessary to have studied some of the animals that live in our forests and on our plains.

The few animals which are listed in this outline can be found in many parts of Alberta and they were chosen for this reason. Every school child should be familiar with all of them. On a trip to Banff or Jasper one would probably see all of the larger animals that have been included. Children who are not familiar with them should be encouraged to visit a local zoo.

In "Mammals of the Eastern Rockies and Western Plains of Canada" by A. L. Rand, published by the Queen's Printer in Ottawa, there are listed eighty-five species of mammals in the Alberta area. We find there are for instance eight species of bats in this area, seven species of deer, only one kind of antelope (the pronghorn), but as many as eleven members of the weasel family.

Mammal life has changed during the time that white men have lived on the plains. The buffalo have disappeared except for those in the parks; the antelope are increasing in numbers following a period of great scarcity in the early part of the century, elk are to be found now only in the mountains and foothills, and the beaver, marten and fisher have become exceedingly rare because of over-trapping.

The government has passed game laws to preserve those animals which are in danger of extinction, and to ensure that sufficient numbers of the others remain. Hunting seasons are controlled and involve only the game which the range will not support. Students should understand something of the significance of the balance of nature and how man sometimes is an aid but sometimes an upsetting force in this balance. Sympathy for animals is easily aroused in children and to avoid emotional disturbance at the thought of some being used for sport and food it is necessary to point out the need for a balance and the reasons for hunting seasons.

All changes in mammal population are not a result of human interference. The cycle of snow shoe rabbits followed by the cycles of lynx and coyote should be noted. The game laws together with Dominion Park regulations ensure that we have sufficient numbers of most mammals in the province.

SOME MAMMALS OF ALBERTA

Mule Deer

This deer, which ranges from Manitoba to British Columbia and north as far as Great Slave Lake, has acquired its name because of its large ears. It is easily distinguishable from the white-tailed deer, the other main species in Canada, by its antlers which are branched quite unlike those of the white tail. The tail is white with a black tip and much shorter than that of the white-tailed deer, and rarely lifted upright as that of the white-tailed deer generally is in flight. Many mule deer spend the summer months quite high on the mountain slopes and in winter descend to the valleys but others live on the plains all the year round. The coat is dark grey in winter and a yellowish brown in summer. Mule deer are sometimes called "jumpers" as they make vertical leaps into the air when frightened. Average male weight—145 to 200 pounds.

Moose

This member of the deer family, found mostly in the coniferous forests of North America, is easy to recognize with its almost grotesque shape and broad bladed antlers. It has a large head with a muzzle, humped shoulders and below the throat is a flap of skin covered with hair which is known as a "throat bell". The upper parts of the moose are dark brown and the underneath grey. In summer they feed on aquatic plants and in winter on twigs and bark. The moose is the largest antlered mammal that ever lived on earth. Average male weight—1,000 lbs, but sometimes a large animal will weigh as much as 1,800 lbs.

Muskrat

This heavily furred water animal with its small ears and eyes and short legs is to be found in most parts of North America and is much hunted for its fur (musquash). The waterproof coat of the muskrat is brown, the feet partially webbed and the tail is hairless and flattened vertically. This helps to distinquish it from the beaver whose tail is flattened horizontally. The muskrat lives in burrows in the bank above the water surface or in reed houses in the water. It does not hibernate in winter but looks for its food of water plants and small animals under the ice. Average male weight—2 to 3¾ lbs.

Beaver

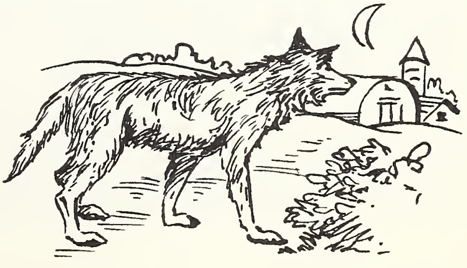
This well-known animal is found in all the Canadian provinces. His rich pelt lured early fur traders to the west in search of new hunting grounds. The beaver with his heavy body, short legs and large webbed feet is mainly known as a dam builder and tree feller. One beaver dam in Montana is said to have measured 2,140 feet. In summer the beaver feeds on water plants and in winter on bark, leaves and twigs which he has stored in lodges behind dams. The dams hold back the water and form a reservoir just as those built by human engineers do. The beaver does not hibernate. Average male weight—35 lbs. to 60 lbs.

Porcupine

This large spiny rodent is well known over most of North America. He has a small head and heavy short tail and is equipped with quite an armory of quills. These are connected to a layer of muscle at the base and are quite flexible: the longer quills do not do much harm but the shorter ones are barbed and will stick into the flesh of enemies, sometimes causing them to die. The porcupine usually sleeps in a hollow log or hole in the rocks and emerges from time to time to look for roots and bark. He is mainly solitary. The flesh is quite palatable and the porcupine is now protected by the Government. Average male weight—8 lbs. to 15 lbs.

Coyote

The coyote or prairie wolf is found on the prairies and mountains of North America. It is smaller than the timber wolf and the fur is much thicker. Hunting mostly at night the coyote will eat almost anything from leather, rubber, and gophers to farm poultry and young livestock. Coyotes usually hunt in packs and are greedy, noisy and destructive. Perhaps the most distinctive thing about the coyote is his mournful and melancholy howl. Average male weight—20 to 30 lbs.



Black Bear

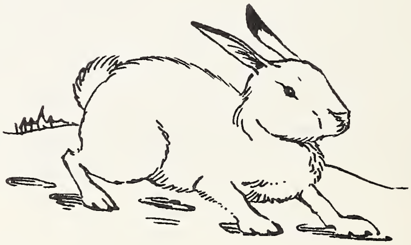
The black bear is found in the forest regions of all the Canadian provinces, with the exception of Prince Edward Island. It may be any shade from black to cinnamon. A large black bear may be confused with a small grizzly, but the head of the former is smaller and more pointed and the claws are shorter. Bears eat almost anything—roots, fruit, berries, mice, and insects but their greatest passion is for sweet things, especially honey. In winter bears hibernate and it is during this period that the cubs are born. Average male weight—200 to 300 lbs.

Pocket Gopher

This small burrowing rodent occurs in British Columbia and the three Prairie Provinces. The name gopher is derived from the French word for a honeycomb (gaufre) because of the way that the burrows honeycomb the earth, and then naturalists called it the pocket gopher because of the fur lined pouches or pockets which extend from the angle of the jaw to the shoulders and which the animal uses for carrying food. The gopher eats grass, roots, buds, nuts and farm vegetables and stores away plentiful supplies for winter in his underground home. He digs with the claws of his front feet and his overhanging front teeth. These four teeth have been said to grow a total of 46" in a year. Gophers are generally disliked by the farmers because they destroy crops and dig such a maze of tunnels, but they do some good to the soil providing humus and aeration. Average male weight—1 lb.

Jack Rabbit

This animal is miscalled, as at is not a rabbit at all, but a hare and the name Prairie Hare by which it is often known is more apt. A hare has much longer ears that a rabbit and does not dig a burrow but sleeps in a hollow or "form" on top of the ground. The "jack-rabbit" is found in the south of the four western provinces to some distance north of Edmonton and in some parts of Ontario. It is herbivorous as are other varieties of hare, and the upper lip is split. Its dark coat turns white in winter as a protection against its enemies. Hares breed very prolifically and appear to have cycles of abundance with peaks varying from 9 to 11 years. They are eaten by many fur bearing animals and so their years abundance or decline is reflected in the trappers' catches. They are one of the fastest moving of small animals. Average male weight—5 lbs to 10 lbs.



BIRDS OF ALBERTA

It has been difficult to select a few birds from amongst the three hundred or more birds which have been identified in Alberta. The purpose of choosing any was to provide encouragement for the observation of birds, and to list a few which may be found in nearly all parts of the province. It is to be hoped that most Alberta boys and girls know and can identify many more birds than those we have shown, and that bird study will become a pleasant pastime or even a serious scientific pursuit for many students.

The study of bird banding, including the work of Jack Miner and other bird scientists gives us answers to such questions as how long do birds live, where do birds go when they migrate, what routes do they follow, how fast do they fly, etc. These facts are quite important to those who wish to study birds seriously. They are questions which make bird study exciting.

Bird study at school must be promoted by field trips to see birds in their natural habitat or by attracting them to the school or to homes by means of feeding trays, bird baths, bird houses, etc.

The value of birds for keeping insects down should be a part of conservation study. Large birds which prey on song birds, take away their nests and feeding grounds should be discouraged, although naturalists feel that every bird has a part to play in keeping the balance of nature.

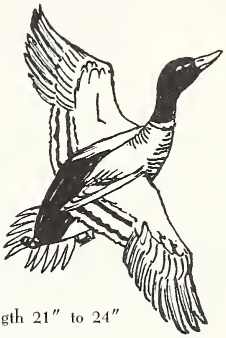
The new book recently published by the Queen's Printer at Edmonton, written by Professor Salt and A. L. Wilk entitled "Birds of Alberta" is of very great assistance to the teacher in any study of Alberta birds. Probably the most valuable part of the book is the little map of Alberta accompanying each description which indicates the region in which the species may be found, whether the bird is to be seen seldom or frequently in any particular region, and whether it is a transient visitor or stays with us for a season or more.

An Audubon Junior club may be formed in a school to promote bird study. The former Canadian Nature Magazine, now called Canadian Audubon, sponsors such clubs and information may be obtained from it regarding their formation. The aims and objectives of such clubs are quite worthwhile and helpful material is sent to the teacher to use in guiding the group.

SOME BIRDS OF ALBERTA

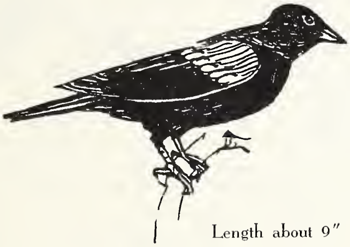
Mallard

This surface-feeding duck is a common summer resident. The male is unmistakable with his glossy green head and upper neck which are separated from the chestnut colored lower neck and breast by a white band. The purple wing patch is bordered by a band of black and an outer one of white. The female is a much less showy bird than the male with a brownish grey plumage. All species of duck moult twice a year. Nests which are on the ground are made of grass and leaves lined with down and usually contain from 8 to 12 greenish eggs. Mallards winter from southern Canada as far south as Panama and return quite early in Spring.



Length 21″ to 24″

Redwinged Blackbird

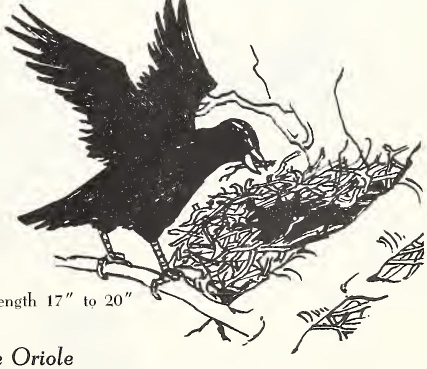


Length about 9″

A common summer resident. The male is easy to identify being all black except for the red patches on his shoulders. The female is a very plain bird with brownish black plumage streaked with grey. Often several pairs of blackbirds form a colony and build their nests in bushes or reeds near the water. These nests are made of grass or reeds and lined with finer grass: they contain from 3 to 6 bluish eggs with darker markings on them. The male blackbird has a rather loud voice, saying OKA-LEE-A, and sounds like a telephone ringing. The birds go south in October and return quite early in spring, with the males usually preceding the females.

Common Crow

A common summer resident. Both adults have the same plumage which is glossy black turning almost to purple in some lights. Crows eat almost anything: they destroy crops, devour the eggs and young of smaller birds, but they also rid the land of many worms and insects. Control of these voracious birds can be exercised. Crows build rather clumsy looking nests of twigs lined with bark and grasses in trees and bushes and lay from 4 to 7 greenish blue eggs which are blotched with brown. The birds assemble in large noisy gatherings before they migrate in the fall. It is easy to confuse the crow and the raven for both are black although the raven is considerably larger. The raven stays here in the winter while the crow goes south.

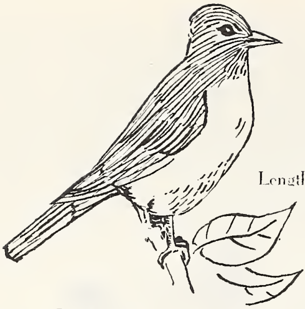


Length 17″ to 20″

Baltimore Oriole

Length about 8″

A common summer resident. This is a striking bird with jet black feathers on the head, neck, back and center of the tail. The breast and lower part of the back are bright orange and there is one white wing bar. The upper parts of the female are greenish and she has two white wing bars. The Baltimore Oriole nests in the southern part of Canada but migrates in winter, often to Mexico. The nests, containing 4 to 6 white eggs with darker markings, are hung near the end of branches in high trees: they are quite deep and are woven from grasses, string and hair. The rich mellow whistle, PET-ER is often to be heard in the parklands where the bird breeds most abundantly.



Length about 10″

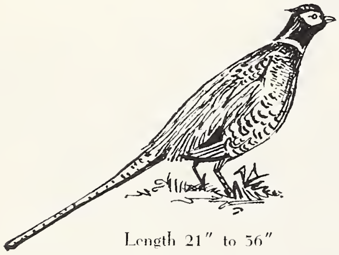
Robin

A common summer resident. When the robin returns from its winter quarters we know that spring will not be long in coming. The bird is quite easy to recognize with its dark grey back and chestnut red breast. The coloring of the female is just a little duller than that of the male. The robin breeds all over Canada as far north as the tree line, and will often nest in trees or bird boxes near to houses. The nests which are coarsely made of grass and straw are bound with mud and contain from 3 to 5 bluish green eggs. The robin eats many worms and insects but also steals many small fruits from gardens. Two lots of young are often raised in one season.

Black-Billed Magpie

A common resident. This large black and white bird with its heavy black bill and long tail is well known in Alberta. Male and female both look alike. The magpie builds a domed nest of twigs with an inner nest of grasses and mud: the entrance or entrances are in the side and the nest usually contains from 6 to 9 greyish green eggs with brown blotches. It is a member of the crow family, and like the crow will eat almost anything, stealing the eggs and young of both wild and farmyard fowl.

Length 18″ to 22″



Length 21″ to 36″

Ring-Necked Pheasant

A common resident. The pheasant is not a native bird of Canada, but originally lived in southern China and Japan. The male is a very distinctive bird with a very long tail, glossy purple head and neck and a bronze and black body. There is usually a white ring around the neck, from which the name of the species is derived. The legs have no feathers. The female is a much smaller bird with a cream colored throat and buff upper parts. Pheasants make their nests on the ground from grass and leaves and lay from 6 to 12 olive colored eggs. It is usual to find several females with one cock in the spring. A pheasant will eat almost everything but grain is its staple food.

Black-Capped Chickadee

A common resident. This friendly little bird does breed all over the province of Alberta but is not common in the prairies or the forests. Both sexes are alike in plumage which is bluish on the back, black on the head and hindneck and brownish on the tail. Below the eye the face is white, together with the sides of the neck. The throat is black. The nest of the black-capped chickadee is to be found fairly close to the ground in a rotting stump or tree. It is made of grass and often lined with rabbit hair, and contains from 6 to 9 speckled white eggs. Their clear CHICK-A-DEE-DEE call always sounds cheerful. Like the woodpecker the chickadee can hang upside down or sideways when he is hammering at wood for insects.

Length about 5″

Length about 18″

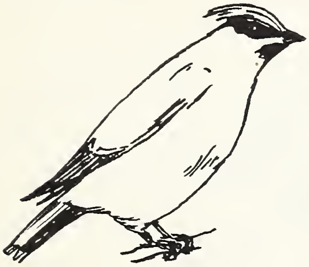
Sharp-Tailed Grouse

A common resident, more widely known in Alberta as the prairie chicken. The plumage of both male and female is alike. The upper parts are of buff, black, white and brown but the general effect is brown; the under parts are mostly white. The tail feathers are graded with the two longest in the middle giving the impression of a sharp tail. Feathers grow right down the legs as far as the toes. The so called prairie chicken is seldom found in open prairie but prefers brush especially if it is near grain fields. The nest of grass is on the ground and usually contains 10 to 14 greenish brown dotted eggs. In spring the males perform a courting dance during which they strut and fight. The sacs on their necks are inflated with air and when this air is released a booming sound is made.

Blue Jay

Fairly common resident. The plumage of both male and female is alike and should make them easy to recognize. The upper parts are bluish purple and the wings and tail are bright blue barred with black, and the tail feathers are also tipped with white. In flight the jay shows a great deal of white, but perhaps the most conspicuous thing about him is the crested head. After the nesting period is over the jay who has been quite wary in the summer becomes inquisitive and noisy. Like the crow and the magpie these birds will eat almost anything, including the young and eggs of other birds.

Length about 12″



Length about 8″

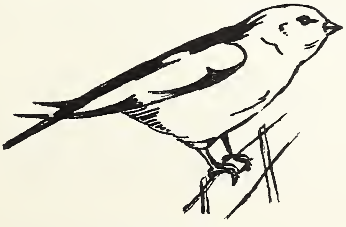
Bohemian Waxwing

Fairly common resident. This bird is seldom seen in the summer as it breeds in the province's northerly coniferous forests, and comes south only in the fall when it migrates. It is quite common to see flocks of them feeding on mountain ash bushes in the middle of towns. Both male and female have the same coloring: the main color is greyish brown, the forehead golden chestnut, and there is a distinctive black bar running from the beak over the eye. The wings are dark with a white bar and some feathers are tipped with a substance like sealing wax from which the bird derives its name. The tail has a yellow band. The nest which is made of twigs and grass lined with mosses contains from 4 to 6 blue eggs lined and dotted with black. It is easy to confuse the Bohemian Waxwing with the Cedar Waxwing, but the former is chestnut brown under the tail and has white on the wings while the Cedar Waxwing has a white under-tail surface. The Cedar Waxwing is a summer resident and winters further south than Alberta.

Red-Breasted Grosbeak

A fairly common summer resident. This bird is a member of the commonest family in North America which includes sparrows, finches, grosbeaks and buntings. The male red-breasted grosbeak would be hard to mistake, with his black head and back, white wing bars and white tipped tail feathers, and red triangle on the upper part of the breast. The white beak is quite short but very strong. The female is a brownish streaked bird rather indistinctive apart from her beak. The flat poorly built nest contains from 3 to 5 blue eggs with brown spots. These birds breed in most parts of Alberta except the mountains and prairies and migrate to Central or South America. In summer they are usually found in clumps of aspen or poplar where they feed on the insects.

Length about 7½″



Length about 7″

Snow Bunting

Common winter resident. The snow bunting breeds in the tundra but migrates south to southern Canada as far as Florida for the winter. In the northern part of Alberta they are seen only in the fall and the spring as they pass through, but they are common in the southern half of the province in winter. Snow Buntings are easy to identify as no other comparatively small bird shows so much white in flying. The upper plumage is mainly white too except for a band of black feathers. In winter these black feathers are tipped with whitish grey. The snow buntings usually travel in fairly large flocks and can often be seen picking at seeds and also at grit on the roads.

SUGGESTED ACTIVITIES

AN EXPERIMENT TO SHOW THE VALUE OF FOREST COVER IN SOIL EROSION

This is a useful device to show the effect of forest cover in holding moisture. It consists of two large mounds of earth which correspond to hills. These should be placed on a ridge outside where there is a slope. Make the piles of earth and with a stick scoop out a stream bed on each slope running down the valley. For each slope there may be constructed tiny paper houses, barns and bridges for the stream.

Now press moss firmly on to one hill including the banks of the stream bed. Put evergreen twigs into the moss to represent trees.

Hold a sprinkling can three feet from the hills. Let the "rain" fall on the forested hillside. The trees will break the fall of the drops and the moss will absorb most of it. When the uncovered hillside is watered the drops hit the ground with much force, form gullies and rush down the stream bed with great speed. The stream becomes muddy and overflows its banks. As a result the lower areas are flooded and the bridge will be washed away.

Plastic Relief Map of Alberta

To begin with obtain a sheet of wallboard or plywood and a small map of Alberta. To enlarge a small map mark it off in squares, then mark the sheet of wallboard or plywood off in a similar number of squares. If the board is four times the size of the map, and the map is marked off in inch squares then mark the board in four inch squares. Using the squares as guides sketch the enlargement on the board free-hand.

Paint the rivers and lakes with blue oil paints. Mark in the contour lines of the land and mark in the number of feet of rise in each line.

The altitude scale will need to be much greater than the horizontal scale. If the contour lines are about four in number: say sea level, one hundred feet, two hundred feet and three hundred feet use the board level correspondingly, i.e. 1", 2" and 3". It is not advisable to build contour maps above 3" to 3½". Where mountains are to be shown hammer long tacks in the contour edges and over them mold the plastic.

Build the relief one layer at a time. The drainage system with the rivers should be done carefully. The rivers must run downhill until they reach the lowest level where the altitude is too small to show on a small-scale map. Let the map dry and then fill in holes and cracks.

When completely dry, the map should be varnished and a fine paint brush with blue oil paint should be used to indicate rivers and lakes.

This map may now be used in many ways. Things may be put on it and later washed off. Thus the map may be used successively as a products map, an early explorers map, a soil map, etc.

Recipe for Papier Mâché

Although other substances such as wood, putty, plasticine, etc., make excellent plastic materials, papier maché is the cheapest. White tissue or newspaper may be cut up, soaked overnight and boiled for a number of hours. The water is poured off and a cup of flour and water (the thickness of cream) together with two teaspoons of powdered casein glue should be worked into the paper. The mixture should not be too dry. It should stick together well. If it does not stick add more flour and water. If it is too spongy add more paper.

Other Conservation Projects

The nearest real laboratory that children have for learning to conserve soil and water is their school ground. It is true that the school ground is thought of first as a place to play and areas are set aside for this needed outdoor recreation. But there are areas where boys and girls can start seeds, set out plants, keep the soil in good condition and see that good soil produces useful and beautiful plants, grass and trees.

The projects which have been attempted along this line are many. In one elementary school the parents' association dug one hundred and fifty holes in which the children planted trees to provide a wind break. In another where a gully was becoming more pronounced each year, grass was planted on the bank and trees at the edge. The gully is now a place of beauty. In a third school the children built a rock garden to protect the soil from eroding. Everyone brought a rock for the garden and put in plants. They made a bird bath in the center and a bird feeding station. These children also set up a bird sanctuary in one corner by planting grass which gave birds seeds and shelter or was suitable for nest building. A bird feeding station was placed there too.

Bird Watching Clubs

The Audubon Society encourages such clubs. The most successful program for classes is to choose one bird for study at a time. For instance the wood partridge (Ruffed Grouse) might be chosen. The objectives of studying the partridge might be to recognize them by sight and sound and to learn to conserve partridge in the vicinity of school and the homes round about, especially farm homes.

Learn to identify the bird through pictures, etc. Go on a field trip to see and study them in the spring time. Plan the trip in conjunction with another type of field trip in case no partridge are located. Keep a list and details of chance encounters by individuals.

Discuss the importance of leaving fence corners and edges of fields full of natural cover for partridge and prairie chicken. Discuss the kind of shrubbery which prevents dogs, cats and men from going through and therefore protects birds.

Some Reminders

Remember that conservation is something one *does*. Books, pictures and discussions help but conservation can become real only when real experiences occur.

Projects should not be prolonged beyond the interest and ability of the class. Experiences requiring repeated performances should be limited to the extent that they can be useful physically or educationally.

It is of more value to plant flowers than to talk about them. A class about to make a flower bed may discuss first the kind of soil, amount of water etc. to be used. They may dig holes, measure depth, plant seeds and replace soil. Then they may consider how to keep soil from washing away, how to grow better flowers and what happens if people walk on flower beds.

It is evident that more active participation is needed if conservation is to be a way of life for all of us.

FILMS AND FILMSTRIPS FOR ALBERTA ENTERPRISES

Problem Areas for Study	*Films*	*Filmstrips*
1. An understanding of latitude and longitude as related to Alberta. What are: Range lines, Township Arrangements, Meridians? Discuss time changes, correction lines.	T-604 Latitude and Longitude	Pk-2946 Latitude, Longitude and Time (E.G.Ho.) P-963 Latitude and Longitude (G.B.I.)
2. Distances as related to Alberta. What is flying distance between: Montreal and Calgary Edmonton and Vancouver Alberta and London via Polar route?		
3. The Topography of Alberta. Where are the mountain ranges? Where precisely are the foothills? How much of Alberta is open plain? How much of the province is parkland?	T-968 Gift of the Glaciers Tk-1205 Great Plains Tk-411 Jasper National Park Tk-659 Peace River Tk-998 Wardens of Waterton Tk-996 Physical Regions of Canada	Pk-1614 Geographical Regions of Canada (N.F.B.) P-1333 Prairie Provinces (N.F.B.) Pk-2929 Introducing the Topographical Map (N.F.B.)
4. Rock formation in Alberta Mountains. What are the three classifications of rock? What causes rock strata? How are mountains formed? What fossils in the Rocky Mountain rocks tell us about early ages in Alberta?	T-197 Earth's Rocky Crust Tk-935 The Fossil Story T-154 Mountain Building Tk-1334 Minerals and Rocks	Pk-2941 Mountains (E.G.Ho.) Pk-3038 Discovering Fossils (E.B.F.) Pk-2037 The Story Fossils Tell (E.B.F.) P-1597 Dinosaurs (N.F.B.) P-260 How Rocks are Formed (J.H.) P-261 The Story of Earth we find in Rocks (J.H.) P-299 Rocks (V.I.S.) Pk-2744 Story of Mountains (E.B.F.)
5. Uses and Importance of the Rivers and Lakes of Alberta. What do the terms upstream, downstream mean? What are the characteristics of a young river compared with an old one? What causes lakes to form? What causes muskeg to form? Is much of the land in Alberta covered by muskeg? What is meant by the term water table? What can be done to raise the water table? Where in Alberta has irrigation been used successfully? What crops are produced in these areas? What is meant by Palliser's Triangle? In which lakes in Alberta is fishing done on a commercial scale? What fish are native to our lakes? In what way do sewage problems spoil our rivers? To what extent has hydro-electricity been developed in Canada?	T-24 Portage T-219 Work of Running Water Tk-1217 The Spruce Bog (ecology-change) T-1076 The Making of the River T-614 Sculpture of Land by Rivers Tk-1198 Fisheries of Great Slave Lake T-290 Irrigation Farming T-6 Clouds Go To Work T-298 Water Cycle T-134 Work of Rivers Tk-697 Green Acres (irrigation)	P-2107 Work of Rivers (Hulton) P-3108 Lakes (J.H.) P-1722 Irrigation Farming (E.B.F.) Pk-2741 The Story of Rivers (E.B.F.) Pk-2742 The Story of Underground Water (E.B.F.) Pk-2454 Conserving Water Resources (Curr.)
6. Characteristics of Alberta's Climate. What are Alberta's temperature ranges? What is Alberta's average yearly rainfall? Discuss how our climate is affected by the winds. What is a Chinook wind? How much moderating effect has it on Alberta's climate? What causes air pressure? How is weather forecast? What effect have the mountains upon our climate?	T-218 The Weather T-514 What Makes it Rain? T-1128 How Weather is Forecast	Pk-2949 Air and the Weather (E.G.Ho.) P-388 Barometers and the Weather (J.H.) P-1075 Humidity (J.H.) Pk-2002 What Weather Is (J.H.) Pk-2004 Climate (J.H.) Pk-2814 Climates (Y.A.F.) Pk-1472 Understanding Weather Conditions (P.S.P.) P-1388 Weather (E.B.F.) P-1889 Weather (Life) Pk-2160 Water in Weather (Curr.) Pk-2161 Be Your Own Weather Man (Curr.) Pk-2244 Weather and People (Curr.) Pk-2245 Weather Bureau (Curr.) Pk-2246 Weather Maps (Curr.) P-2003 What Makes Weather (J.H.) Pk-1470 We Learn About Weather (P.S.P.) P-1917 Wind (V.P.L.)

FILMS AND FILMSTRIPS FOR ALBERTA ENTERPRISES

Problem Areas for Study	*Films*	*Filmstrips*
7. History and Culture of Alberta's Native Tribes. In what ways did the coming of the white man injure the Indians? Did the white man bring any good to the natives? What evidence have we that the Indians are becoming a mature people? What help and care does the Government give Indians and their families?	Tk-1043 Indians of the Plains Tk-1306 No Longer Vanishing T-768 Northwest Frontier	Pk-1618 Hudson's Bay Company (U.H.) Pk-2975 Before the White Man Came (Y.A.F.) P-2085 Indian Life in Early Canada (N.F.B.) P-1957 Paul Kane (N.F.B.)
8. Contribution of Early Explorers to the Development of the Province. Who were the first white men in Alberta? For what reason did the explorers come to the western prairies? In what way did their coming effect changes in living for the natives? What kind of wild life was in Alberta at that time? What were the difficulties in living in the great North West?	Tk-501 Mammals of the Western Plains Tk-1205 The Great Plains	P-1816 Alexander MacKenzie (N.F.B.)
9. The Need for Policing the Prairies. What was the whisky trade? Who were the traders? Why were Indians and half-breeds hostile to the coming of white settlers? What events led to the Saskatchewan Rebellion? What clashes took place in Alberta? What steps were taken by the government to end conflict and who assisted? Did the police handle Canadian Indians more successfully than those south of the boundary line?	T-256 Maintain the Right (Contemporary R.C.M.P.)	
10. Importance of Transportation in the Settlement of the West. What kind of boats were used on the rivers in the times of the great fur-trading companies? What did the mule trains from Fort Benton carry? How long did they operate? What were the characteristics of the Red River cart? When were they used? What changes did they bring to Alberta? When was the railway begun? What kind of men were responsible for putting it through? What difficulties were experienced in building it? What changes came about as a result of the coming of the railways?	Tk-24 Portage T-910 Age of the Beaver T-705 Family Tree	Pk-2141 American Transportation—Horseback to Jet (Life)
11. Contributions Made by Early Settlers in Alberta? Life around early trading posts. What settlers came in groups to take up large tracts of land? How did the railway assist settlement? How did settlement affect fur trade, the Hudson's Bay Company and land settlement? Hardships faced by Alberta settlers? What happened in Alberta portion of Palliser's Triangle?	Tk-1153 Prairie Conquest T-261 Cattle Country	Pk-2369 Pioneers of the Plains (Curr.) Pk-1618 Hudson's Bay Company (U.H.) Pk-2525 Farmers Go West (Curr.) Pk-2527 A New Farm (Curr.) P-1336 The Settlement of Canada (N.F.B.) Pk-2062 Selkirk the Colonizer (N.F.B.)
12. Provincial and Municipal Government. When did Alberta become a Province? What matter came under provincial jurisdiction immediately? What new problems did Alberta accept when she took over the Natural Resources in 1930?		P-1343 Provincial Government (N.F.B.) P-1341 Municipal Government Part I (N.F.B.) P-1342 Municipal Government Part II (N.F.B.) Pk-2740 Health of the People (Alberta D.P.H.)

FILMS AND FILMSTRIPS FOR ALBERTA ENTERPRISES

Problem Areas for Study	*Films*	*Filmstrips*
What is the county system? What are the advantages of large school divisions over single school districts?		
13. Alberta's Soil Fertility and its Effect on Farming. What are main kinds of soil in Alberta? What causes soil to be different? What kinds of farming are carried on in various parts of the province? What are the valuable farm products of Alberta? What kinds of animals do best in Alberta?	T-173 The Wheat Farmer Tk-264 Soil for Tomorrow Tk-1228 Birth of Soil T-261 Cattle Country Tk-697 Green Acres (Irrigation) T-290 Irrigation Farming Tk-439 Soil and Life Tk-1013 Western Wheat	Pk-2451 Conserving our Soil Resources (Curr.) P-1535 How Soil is Formed (E.B.F.) P-1536 Plant Life and the Soil (E.B.F.) P-1537 Water and the Soil (E.B.F.) P-1538 Animal Life and the Soil (E.B.F.) P-1539 Minerals in the Soil (E.B.F.) P-1540 How Man has Used the Soil (E.B.F.) P-1541 How Man Conserves the Soil (E.B.F.)
14. The Wealth of Our Forests. What are the native trees of Alberta? Of what value are each of these? Location of our lumbering and pulp-mill industries. Connection between water conservation and the growth of trees and plants.	T-710 Pulp and Paper from Canada T-749 The Story of Paper Making T-1265 Forest Ranger T-30 Trees for Tomorrow Tk-861 Your Forest Heritage	P-1001 Timber from Forest to House (N.F.B.) P-1794 Forestry Part I (N.F.B.) P-1795 Forestry Part II (N.F.B.) P-1796 Forestry Part III (N.F.B.) Pk-2725 West Coast Lumber Industry (Curr.)
15. Importance of wild life in Alberta. Protection of fur-bearing and game animals. What is meant by the "balance of Nature?" How is it upset when man interferes? What is a wild flower preserve and a bird sanctuary? Have we any in Alberta? Where in Alberta are wild animals preserved?	Tk-501 Mammals of the Western Plains Tk-1184 The Beaver Tk-1257 Beaver Valley Tk-253 Realm of the Wild	Pk-2572 Birds of the Prairies (E.B.F.) P-218 Helping Birds (J.H.) P-217 How Birds Serve Man (J.H.) Pk-2568 American Buffalo (E.B.F.) Pk-2571 Coyotes and Other Animals (E.B.F.) Pk-2395 The Canada Goose (N.F.B.) Pk-2931 The Common Loon (N.F.B.) Pk-1960 Larger Land Mammals of Canada (N.F.B.) P-1728 Native Trees of Canada (N.F.B.) P-1829 The North American Moose (N.F.B.)
16. The Importance of our Mineral Wealth. What was Alberta's first mining industry? How has the discovery of large oil fields changed life in Alberta? What do we know of the early stages of the earth's history that relate to oil and coal. What secondary industries have arisen as a result of mineral wealth.?	Tk-893 Birth of an Oil Field T-917 Oil From the Earth T-362 Getting Out the Coal T-308 Story of Coal Tk-261 A Mile Below the Wheat Tk-918 Prospecting for Oil T-263 Story of Oil Tk-936 Search Unending	P-988 Coal (C.G.) P-1431 How We Get Our Coal (Y.A.F.) P-1529 How We Get Our Gas (Y.A.F.) P-2933 Natural Gas: Science Behind Your Burner (American Gas Association) Pk-2727 Oil from the Prairies (American Petroleum Institute) P-1435 How We Get Our Oil (Y.A.F.) Pk-2509 Our Dependence on Oil Workers (Curr.) P-1601 Salt Mining in Canada (N.F.B.)
17. Alberta's Economic Opportunities. What disadvantages has Alberta in the matter of trade—both world trade and continental trade. How have we attempted to overcome these disadvantages? What undeveloped resources have we in our province? What future prospects have we for these undeveloped resources?	Tk-1205 The Great Plains T-787 Alberta Family T-261 Cattle Country Tk-1198 Fisheries of Great Slave Lake Tk-968 Gift of the Glaciers	
18. Growth of Alberta's Population and Location of Concentration of Population. Origin of our People. Why does over half of the population live within a hundred-mile radius of Red Deer? Is the population slowly moving north? What racial and culture groups are among our more recent settlers? Are they mixing with the population or do you find them in certain areas and therefore in certain industries?	T-50 Peoples of Canada Tk-760 Canadian Heritage T-1095 The Newcomers Tk-44 Ukrainian Winter Holiday	

ADDRESSES OF FILMSTRIP DISTRIBUTORS

Although films and filmstrips listed in this outline are available from the Audio-Visual Aids Branch of the Department of Education and the numbers are those given for their catalogs, a list of addresses of producers of filmstrips is included for those schools in which a filmstrip library is being planned.

On the left side of this page the names of filmstrip producers, abbreviated as in the previous pages, are listed in alphabetical order. On the right side are given the names of distributors through whom you can purchase.

The Audio-Visual Aids Branch does not act as a distributor or agent for the sale of filmstrips. Orders should not be sent to this Branch. The Division of Visual Instruction, Department of Extension, University of Alberta, provides such a service for filmstrips.

SOURCES FOR AUDIO-VISUAL AIDS MATERIAL

Alberta D.P.H.	Health Education Division Department of Public Health EDMONTON, Alberta
American Gas Association	Education Service Bureau Department PL American Gas Association 420 Lexington Avenue NEW YORK 17, N.Y.
American Petroleum Institute	American Petroleum Institute 50 West 50th Street NEW YORK 20, N.Y.
C.G. (Common Ground)	Rank Film Distributors Ltd. 277 Victoria Street TORONTO, Ontario
E.B.F.	Encyclopedia Britannica Films Inc. 978 Queen's Way TORONTO, Ontario
E.G. Ho. (Eye Gate House)	Ryerson Film Service 299 Queen Street West TORONTO, Ontario
G.B.I. (Gaumont British Instructional)	J. Arthur Rank 16mm Distributors Ltd. 277 Victoria Street TORONTO, Ontario
Hulton	Hulton Press Ltd. 43-44 Shoe Lane LONDON, E.C. 4, England
J.H. (Jam Handy)	Jam Handy Company 2821 East Grand Boulevard DETROIT, Michigan
Life	Life Magazine Incorporated 9 Rockefeller Plaza NEW YORK 20, N.Y.
N.F.B.	National Film Board South Side Post Office EDMONTON, Alberta
P.S.P. (Popular Science Publishing)	McGraw-Hill Co. of Canada Ltd. (Text-Film Department) 253 Spadina Road TORONTO 4, Ontario
U.H. Unicorn Head)	Unicorn Head Visual Aids Ltd. 35 Portland Place LONDON, W. 1, England
V.I.S.	Visual Information Service 168a Battersea Bridge Road LONDON, S.W. 11, England
V.P.L.	Visual Publication Ltd. 197 Kensington High Street LONDON, W. 8, England
Y.A.F. (Young America Films)	General Films Ltd. 1534 Thirteenth Avenue REGINA, Saskatchewan

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Suggested Teacher References:

*Berry: *The Whoop-Up Trail*, Institute of Applied Art Limited.

*Dominion Government: *Canada Year Book*, Queen's Printer, Ottawa.

*MacGregor: *Land of Twelve-Foot Davis*, Institute of Applied Art Limited.

MacEwan: *Eye-Opener Bob*, Institute of Applied Art Limited.

MacGregor: *Blankets and Beads*, Institute of Applied Art Limited.

McConkey: *Conservation in Canada*, J. M. Dent and Sons Limited.

*Salt and Wilk: *The Birds of Alberta*, Queen's Printer, Edmonton.

Lysenko: *Men in Sheepskin Coats*, Ryerson Press.

*Hanson: *Dynamic Decade*, McClelland and Stewart Limited.

Hiemstra: *Gully Farm*, McLelland and Stewart Limited.

MacMillan: *Glooskap's Country*, Oxford University Press (suitable for reading aloud).

Bathurst: *Conservation Experiences for Children*, U.S. Dept. of Health Welfare and Education.

*Ladell: *This is Alberta*, Viking Press.

Rand: *Mammals of the Eastern Rockies and Western Plains of Canada*, Queen's Printer, Ottawa.

Suggested Pupil References:

Fisher and Tyner: *Totem, Tipi and Tumpline*, J. M. Dent and Sons, Limited.

*Boon: *Alberta, Western Treasure Chest*, Western Canada Institute.

*Scott: *Story of Our Prairie Provinces*, J. M. Dent and Sons Limited.

Taylor: *Canada and Her Neighbors*, Ginn and Company.

*Willison: *Land of the Chinook*, MacMillan Company of Canada Limited.

Lewis: *Lure of the West*, School Aids and Text Book Publishing Co. Limited.

Tait: *Famous Canadian Stories*, McClelland and Stewart Limited.

Tait: *Breastplate and Buckskin*, Ryerson Press.

Weekes: *Great Chiefs and Mighty Hunters*, School Aids and Text Book Publishing Co. Limited.

Gadd: *White Hawk*, Ginn and Company.

Cameron Innis Boggs: *Living in Canada*, Clarke, Irwin and Company Limited.

Gough: *New World Horizons*, J. M. Dent and Sons Limited.

La Rue: *Little Indians*, MacMillan Company of Canada Limited.

MacVicar and Craig: *Tales and Trails of Western Canada*, School Aids and Text Book Co. Limited.

Books Used for Background Reading for this Outline:

Kelly: *The Rangemen*, (Archives).

Thompson: *David Thompson's Narrative*, (Archives—Champlain Society).

Kane: *Wanderings of an Artist in Western Canada*, (Archives).

Bussard: Thesis *Early Days in Calgary* (not published).

MacGregor: *Blankets and Beads.*

Berry: *The Whoop-Up Trail.*

MacEwan: *Eye-Opener Bob.*

MacGregor: *Land of Twelve-Foot Davis.*

Calgary Power: *Alberta—Province of Opportunity.*

Dominion Government: *Canada Year Book.*

Alberta Government: *Graphs of Growth.*

Federal Department of Transport—*Weather Graphs and Statistics.*

Blue: *Alberta Past and Present.*

MacCrae: *The History of Alberta.*

Leechman: *Native Tribes of Canada* (Archives).

Knight: *The Jesse Knight Family.*

Copies of *The Imperial Oil Review.*

Department of Economic Affairs:
Within Our Borders

From Barnacle to Banff (Archives).

Cameron: *Blood Red the Sun.*

Lysenko: *Men in Sheepskin Coats.*

MacInnes: *In the Shadow of the Rockies* (Archives).

Peterson: *Field Guide to Western Birds.*

Salt and Wilk: *The Birds of Alberta.*

Rand: *Mammals of the Eastern Rockies and Western Plains of Canada.*

Budd: *Wild Plants of the Canadian Prairies.*

Department of Citizenship and Immigration: *The Canadian Indian* and various publication on Canadian Immigration.

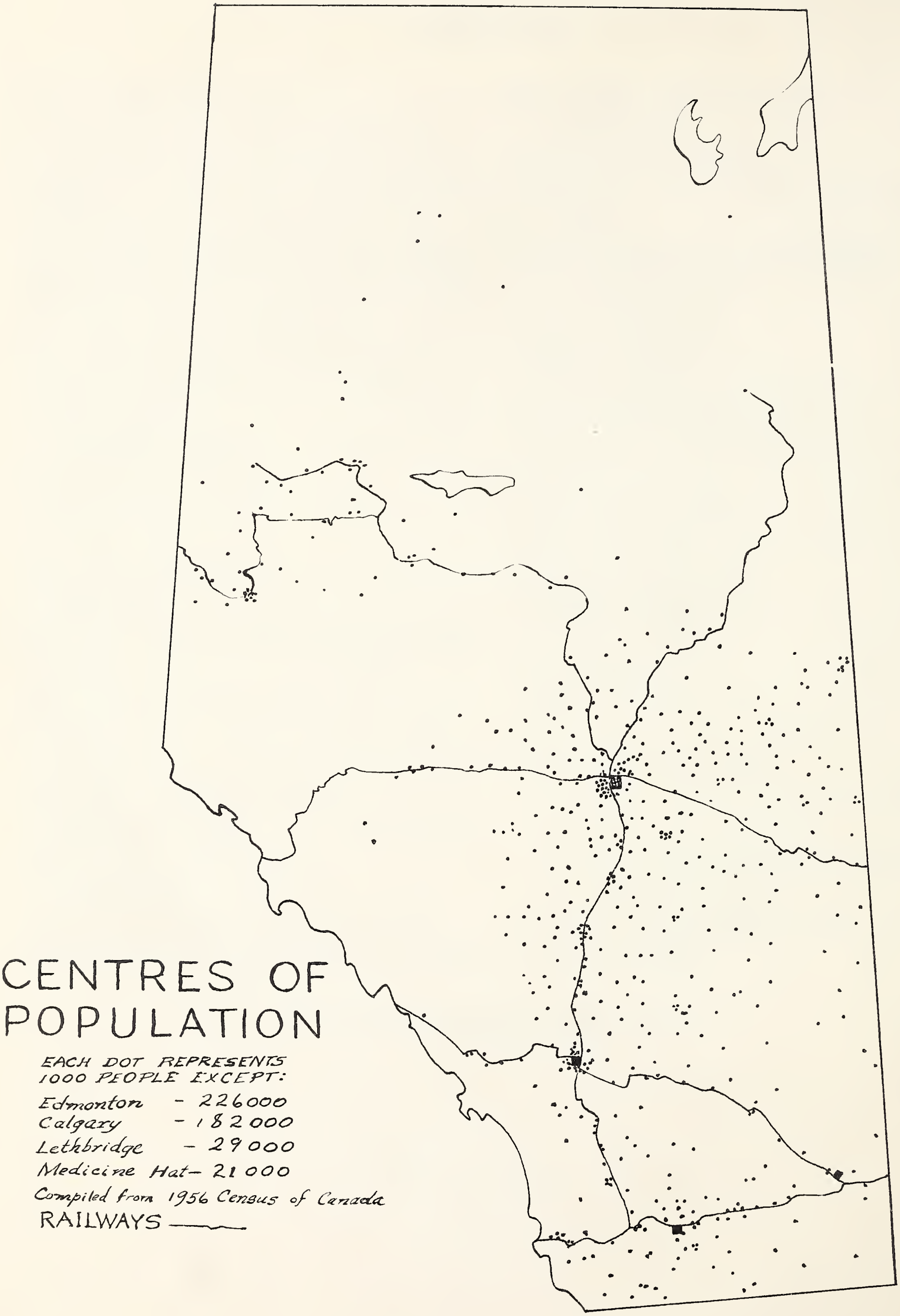
MacKay: *The Honorable Company.*

Blair: *Report on the Alberta Bituminous Sands.*

Canadiana Encyclopedia.

World Book Encyclopedia.

*The books thus marked are important references.



CENTRES OF POPULATION

EACH DOT REPRESENTS 1000 PEOPLE EXCEPT:

Edmonton - 226000
Calgary - 182000
Lethbridge - 29000
Medicine Hat - 21000

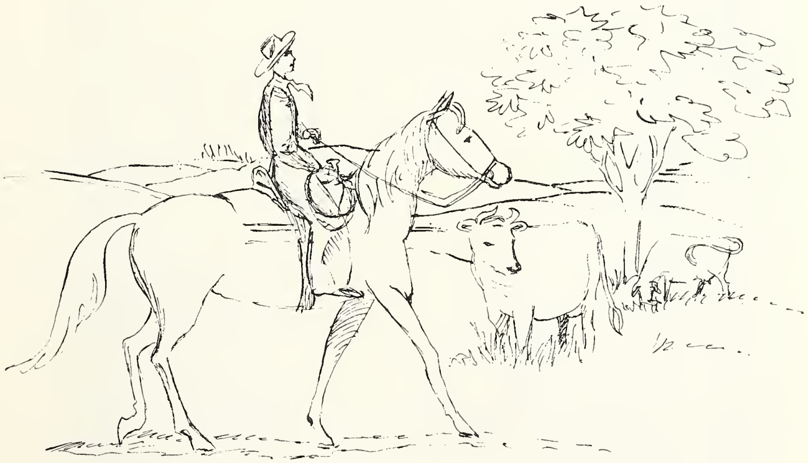
Compiled from 1956 Census of Canada

RAILWAYS ——

CONCLUSION

We have now come to the end of our Alberta story. In matter of time it covers from the days of the Blackfoot Confederacy to the development of a flourishing agricultural and industrial province. The idea behind the story prepared for this resource unit is that much of the present and all of the future belongs to the children of the province. It is theirs to protect, to conserve, to develop, to enjoy and to work for.

The results of their work should be worthwhile institutions and worthwhile citizens. These will be the elements that will impart a rosy hue to the future, out where the west begins.



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